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# The Province of Alberta

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IN THE MATTER OF "THE NATURAL  
GAS UTILITIES ACT"

—and—

IN THE MATTER OF an Enquiry into  
Scheme to be adopted for Gathering,  
Processing and Transmission of  
Natural Gas in Turner Valley

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G. M. BLACKSTOCK, Esq., K.C., *Chairman*  
Dr. E. H. BOOMER, F.C.I.C., *Commissioner*

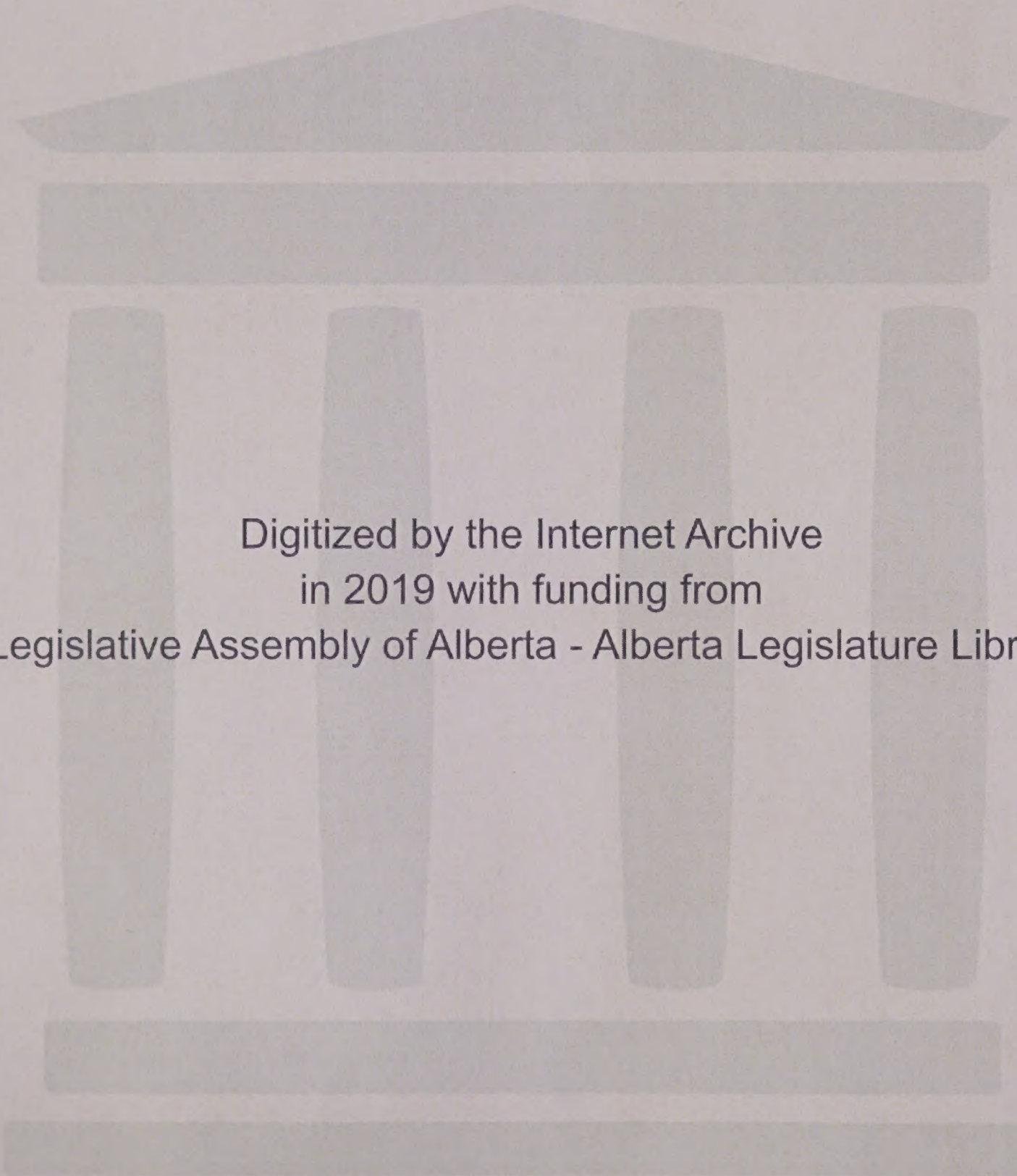
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***Session:***

**CALGARY, Alberta** April 5th, 1945.

**VOLUME** 19





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I N D E X

VOLUME 19

April 5th, 1945.

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James R. Donald,  
Dir. Ex.by Chairman.

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9.30 A.M. Session.  
April 5th, 1945.

JAMES RICHARDSON DONALD, having

been first duly sworn, examined by the Chairman, testified as follows:-

Q Mr. Donald, if you will just read your submission when you are ready?

A Yes.

Q And make such comments, if any, that you may desire as you go along?

A Thank you.

Q We will mark Mr. Donald's submission Exhibit 58.

SUBMISSION OF MR. J. R. DONALD  
MARKED EXHIBIT 58.

WITNESS: Mr. Chairman and Gentlemen:

The Dominion Government Ammonia Plant located immediately south of Calgary and known as "Alberta Nitrogen Products Limited" was planned early in 1940 as part of the overall program of the Department of Munitions & Supply for the production of ammonia and ammonium nitrate to meet United Kingdom, Canadian and other requirements.

In addition to the Calgary plant Government financed ammonia and ammonium nitrate plants were erected at Niagara Falls and at Trail, British Columbia. The Calgary plant, originally planned to have a capacity of 100 tons of ammonia per day, has been expanded to a capacity of some 230 tons of ammonia per day, and in addition has equipment for converting some 75 tons per day of this ammonia to ammonium nitrate.

It is the largest unit in the Government ammonia operations and the only plant using natural gas as the



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Jas. R. Donald,  
Dir. Ex. by the Chairman.

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basic raw material for ammonia manufacture.

The decision to locate the plant at Calgary was based upon the availability of natural gas, good water supply and suitable transportation, and the general belief that an ammonia plant so located should prove a valuable post-war industrial asset.

The construction involved a capital expenditure of some \$10,000,000.00 and it is, I believe, the largest single manufacturing enterprise in Alberta. It represents the most recent advances in chemical engineering technique in the field of high pressure synthesis, and it is undoubtedly one of the finest plants of its kind on the continent. It currently provides employment for some 400 men and women including a highly trained technical staff and an unusually high proportion of skilled labour.

The plant was primarily created to supply ammonia and ammonium nitrate for explosives and did so first for Canada and the United Kingdom and later for the United States. More recently a large proportion of the output has been converted to nitrogen fertilizer to meet the serious world wide shortage of fertilizer nitrogen required for food production.

An outstanding wartime achievement has been the development at this plant of a process for the production of ammonium nitrate in a suitable physical form to meet fertilizer requirements. The process has also been installed at the other Government plants and Nitraprills, as the product is known, is finding a world wide market. Inasmuch as prior to this development ammonium nitrate was considered an unsatisfactory fertilizer material,







Jas. R. Donald,  
Dir. Ex. by the Chairman.

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it represents a notable achievement, and has proved an important contribution to the Canadian war effort.

I might say that we first of all tried to dispose of the ammonium nitrate fertilizer in the form it was produced, but it used to cake up solid in the bag so that the user, it was practically impossible for him to use, and the user who used it he had to break it up, but by this process that difficulty has been overcome and the largest fertilizer manufacturers throughout the United States, who at first were very pessimistic about ammonium nitrate being generally suitable for use as fertilizer, reversed their opinion and they now determine it to be a good fertilizer material.

Currently maximum production of ammonia from our plants is required to meet the United Nations' demand for explosives and fertilizer, and this condition will continue until the end of the war in Europe.

As a matter of fact, at the present time ammonia is as short as it ever has been.

A world wide ammonia shortage is anticipated for at least two years after the conclusion of the European war and possibly longer depending upon the war in the Pacific. This ammonia will be required to meet the serious food shortage throughout the world and to restore agriculture in the devastated countries. It consequently seems evident that for at least another two years a world shortage of nitrogen will continue, and full operation of the Calgary plant will be required as part of the war effort. In some quarters it is felt that the period maybe longer than two years.

You will realize that the difficulty of being very definite about these markets is the unknown factors.







Jas. R. Donald,  
Dir. Ex. by the Chairman.

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If the Japanese war breaks up the demand will break up. There has been a tremendous increase in ammonia production all over the world. We have had it out here but it has undoubtedly been the same way in the Axis countries, and gradually as these plants are reconditioned and things get back to normal, the comparative position in ammonia will be much greater than it has ever been. There is no question about it. But in the meantime, the shortage is on and these markets will undoubtedly persist until the world stocks are built up again. Now countries like the Phillipines and Malaya are very heavy users and they have not been able to get it, and as they are re-established the demand from such countries will be tremendous.

With the end of the nitrogen shortage the operation of the plant will be dependent upon its ability to compete in the world markets. The Canadian demand is relatively small and this plant will be dependent upon exports.

I think it is important to recognize this Canadian position. In other words, any one of our ammonia plants in probably three months can supply the total Canadian demand. So that you can see that the outlets for this plant must be by exports.

As has already been pointed out the basic raw material in the manufacture of ammonia at this plant is natural gas. Any increase in the price of natural gas will be directly reflected in the cost of ammonia and gas is one of the few controllable costs. The volume of gas used operating at full capacity is some 9,000,000 cubic feet per day, and I am informed this represents some 20%







Jas. R. Donald.  
Dir. Ed. by the Chairman.

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of the total gas demand of the Calgary district, and makes the ammonia plant the largest industrial consumer. Moreover, it represents an ideal load in that the demand is constant and practically unvarying throughout the 24 hours and the year. As the other expanded war demands in the Calgary district are reduced the consumption of the ammonia plant will represent a larger proportion of the total.

In arranging for the construction and operation of the ammonia plant the Department of Munitions & Supply negotiated the contract for gas under which the plant has been operating. We would be very sorry to see any increase in the price of gas as this would adversely affect our cost of ammonia, and we would request that the existing price be maintained. We are familiar with the costs of similar plants in the United States and some of these operate on lower cost gas than the Calgary plant.

It is also suggested that a special low industrial rate would be warranted post-war, having in mind the continuing industrial importance of this enterprise and the necessity of competing in world export markets if operations are to be maintained.

Finally we would again stress the importance to the community of this large modern chemical plant, the possibility of expansion into other products and the creation of a diversified chemical industry.

THE CHAIRMAN: Any questions, Mr. Chambers?

MR. CHAMBERS: No questions.

THE CHAIRMAN: Mr. Harvie?

.....







Jas. R. Donald,  
Cr. Ex. by Mr. Harvie.

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CROSS-EXAMINATION BY MR. HARVIE

- Q Mr. Donald, you state in your report that the capacity of the plant is about 9,000,000 cubic feet per day?
- A Yes.
- Q In the operation of the plant would it be possible to adjust that to meet peak load requirements for the Calgary domestic market?
- A Well I think that is something really that you should talk to the operators of the plant about. It is a particular operating problem, and it is one of those things that will have to be studied as an engineering problem, and I am not really in a position to discuss it in detail.
- Q I notice that you state also that you are familiar with the cost of similar plants in the United States, some of these operating on a lower cost gas than the Calgary plant. Previous to that in your report you mention as far as Canada is concerned this was the only plant using natural gas as your raw material. I assume from this last comment that in the States there are plants using natural gas?
- A Yes, there are several, mostly located near the gas fields in the South.
- Q Do you know if their over-all cost is comparable with the plant in Calgary?
- A Yes, they are very closely comparable.
- Q Thank you.
- A You mean over-all operating cost?
- Q The total cost of the finished product?
- A Yes, very comparable.







Jas. R. Donald,  
Cross-Ex. by Mr. McDonald.

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CROSS-EXAMINATION OF THE SAME WITNESS BY MR. McDONALD.

Q Will you tell us what is the present price that you are paying for gas?

A I have not got the exact details. I have got an idea what the figure is but I do not want to put it in here as being right because I may not be right. At any rate it is the contract price and in any event I think I would regard that as a contract matter and I think it should be dealt with as a contract matter.

Q I take it your suggestion is that even though the cost of producing gas in Turner Valley to the producer should be one figure and should be more than your present price you still maintain the contract price should be paid that you now have?

A I do not suggest anything. All I have stated is that the price of gas will be directly reflected in the price of the ammonia and the ability to sell our product will be dependent upon price.

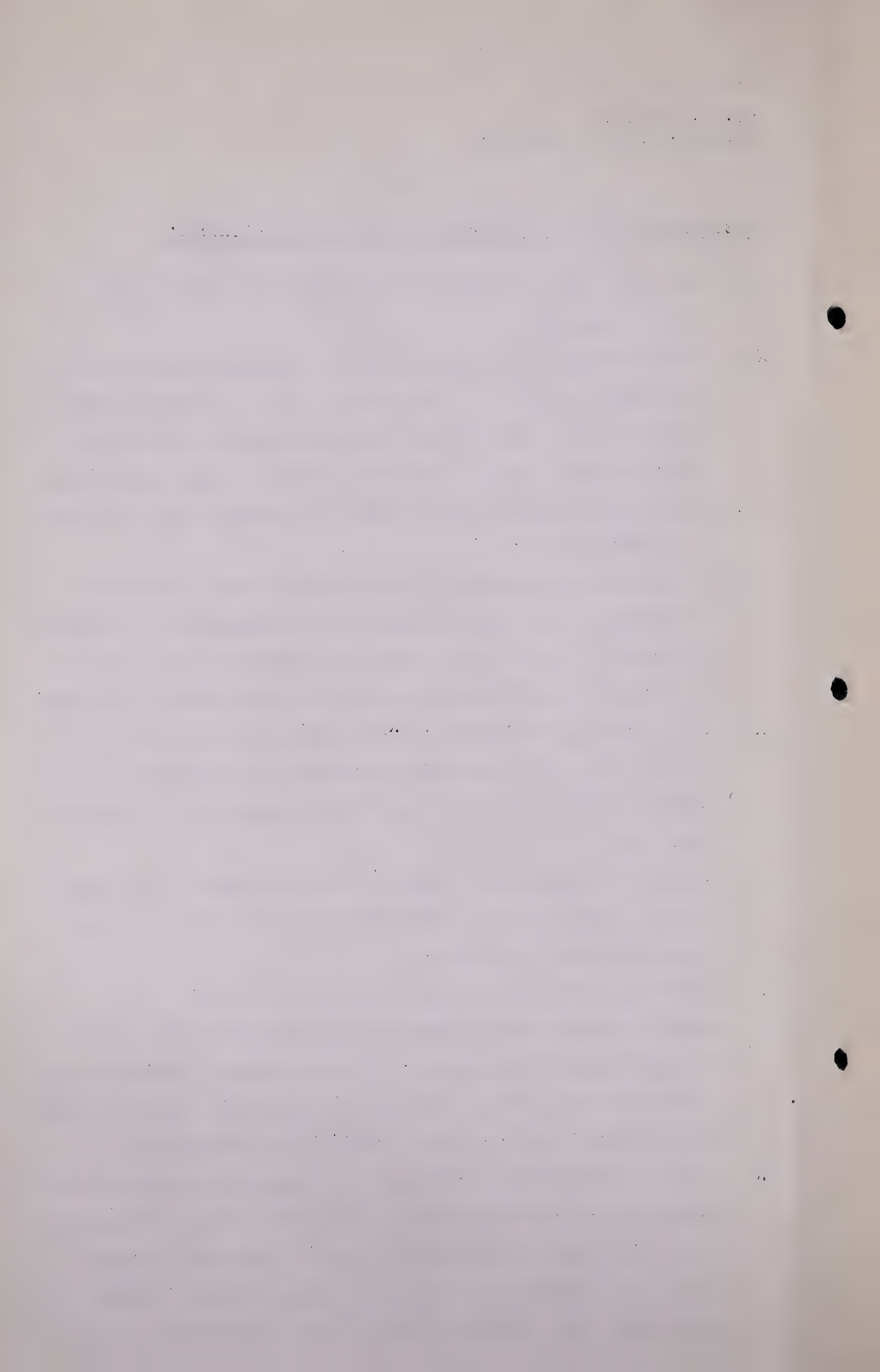
Q And if the producer in Turner Valley who owns the gas wants to sell his gas to your firm he would have to fit into your picture of your operation?

A Well the plant cannot operate at a loss can it?

Q And neither can the producer produce gas at a loss either. But that is your suggestion, if it is a proper business proposition for the producer and the man who owns the gas to deal on a contract price with you lower than it should be?

A I do not think I am here to make any suggestion of that sort whatsoever. All I have said is this that you must recognize that if the Ammonia Plant is to operate post-war, it will have to be competitive with other similar plants, taking everything into consideration and that will have to govern







Jas. R. Donald,  
Cross-Exam. by Mr. McDonald.

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the price of gas to the plant.

Q Now I take it that this Alberta Nitrogen Products Limited is a public corporation?

A A fully Government-owned plant, Dominion Government-owned plant.

Q What are the results of the operations now at the present price. Is it a paying proposition or a losing proposition?

A Unfortunately I am afraid that when you are dealing with a war effort you cannot afford to regard things as to whether they pay or do not pay. You have to have them. There is no real criterion to base things on. Most of the ammonia that we supply for fertilizer is finally given away under our mutual aid set-up and that sort of thing.

Q It is a war effort?

A Yes.

Q And as long as the production of the plant is being used in war effort and as part of the war policy of the country, the Dominion, the cost should really be borne by the Dominion as a whole should it not?

A I am afraid you are going out of my depth. I am not prepared to discuss that question of over-all finance of these things.

Q The point I have in mind is this, that if the product is being produced because of the low price of gas in Turner Valley, which gas is being sold at a loss to the producer, the producer is making the contribution to the war effort and it is an individual contribution rather than from the taxpayers as a whole.

A Don't you think there are a lot of other factors involved such as the people who are employed and other advantages







Jas. R. Donald,  
Cross-Exam. by Mr. McDonald.

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that occur from having such an operation in the district?

Q Well we should have all these facts available in order to evaluate that and arrive at a conclusion of that kind.

A Well I am not quite clear what you are asking me, Mr. McDonald. You are asking me whether - on what basis the Government should purchase gas are you?

Q Yes. Should they purchase it at its real value or should they ask the producers to take less than it costs?

A I do not think I would be inclined to answer that.

Q And if the price is set, the price for the Ammonia Plant is such and such - I do not know what your prices are - - -

A I am afraid I am not in a position to discuss these things. I do not know anything about the basis of the prices that you are asking about or what they mean. We have a contract and we get gas at a certain price. We presume under that contract we paid a fair price for the gas. We would be very sorry to see it increased because it will affect the cost of our ammonia.

DR. BOOMER: I should point out, Mr. McDonald, that the price that the producer ultimately gets is the same whether his gas goes to the Alberta Nitrogen or into the City of Calgary.

MR. McDONALD: That is part of the trouble.

DR. BOOMER: Yes, I know that, but there is no distinction at the moment.

MR. McDONALD: If that were to be continued and the price of gas to the Ammonia Plant is less than the actual cost of production and in case your Board should fix a fair price to the producer, that would mean the other consumers on the line would be bearing the load disproportionately.







Jas. R. Donald,  
Cross-Exam. by Mr. McDonald.  
Cross-Exam. by Mr. Blanchard.

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DR. BOOMER: I did not know what you were driving at.  
Now I know.

Q MR. McDONALD: The point is this. My clients are producers and you understand what the situation is. We would like to have made available to us all the information relative to this Alberta Nitrogen Plant that is available. That is in order that we might make representations to this Board and it would help the Board to determine what they think our price should be.

A I would think to do that you could find out all the information you want. Give us a letter or something and we will do our best to answer it for you.

Q I have already asked your counsel who was purporting to represent you and he ignored my request.

A There is no reason why the basic facts cannot be known. We have no reason to hide them. But you are asking me things I am not competent to deal with.

Q They will be made available?

A I do not see why certain basic information should not be made available but the final answer cannot rest with me.

CROSS-EXAMINATION OF THE SAME WITNESS BY MR. BLANCHARD.

Q Mr. Donald, do you know what the range of prices is for gas in the United States plants?

A We got that information confidentially from the United States. It is not something that we can make public.

Q It is not something that you can disclose to this Board?

A I do not think so, no. That is something that comes to us confidentially from the U. S. Government.

Q I was under the impression these prices were fixed by similar Boards to this in the United States.







Jas. R. Donald,  
Cross-Exam. by Mr. Blanchard.

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A Well I do not know. This comes to us as confidential information.

Q Are these plants established right in the gas field or are they some distance from the gas supply, do you know?

A I cannot answer that in detail. I know they are generally in the southwest. I do not know what their exact location is.

Q How many plants of a similar nature are there in the United States, that is that have been built for war purposes, do you know?

A Four or five I think on gas.

Q You say in the case of some of them the cost of the gas is lower?.

A That is right.

Q Is the cost of the gas substantially higher in the case of the others?

A In the case of one there is a considerably higher cost of gas but in the case of two it is the same and two are lower.

Q Very much lower?

A Yes, substantially lower. They are lower I suppose by 20 per cent.

Q And that is based on the price into the plant. That is at what it is sold to the Government?

A That is our understanding.

Q You mention in the last paragraph of your report the possibility of expansion into other products. I wonder if you could elaborate on that.

A Well just generally speaking a plant of this type could be used to produce other ranges of products. For example you start with ammonia and you can produce urea or you can convert that plant relatively easily and produce methanol.





Jas. R. Donald,  
Cross-Exam. by Mr. Blanchard.

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Q It would be used to manufacture other products having an ammonia base?

A Not necessarily an ammonia base. Urea has an ammonia base but methanol has not.

Q But using natural gas in some form or other?

A Yes.

Q Could the plant be used as a refinery, for instance?

A As an oil refinery?

Q A refinery for crude products?

A Crude oil?

Q With of course changes in the layout and so on?

A You mean oil?

Q Yes.

A No, it is not suitable at all.

THE CHAIRMAN: Mr. Fenerty?

MR. FENERTY: No questions.

MR. CHAMBERS: If the Board pleases, I have no questions to ask Mr. Donald but while he is in the box perhaps I should make these observations - and I am speaking now not on behalf of my clients but mainly as a citizen of Calgary - that this report it seems to me raises a matter of vital importance to this Southern Alberta and to Calgary particularly. Taking the long-range view that after the war the possibilities that this plant may export for a while. It does seem to me that it would be of assistance to the Board if we had more information. I am not suggesting that Mr. Donald is the man to furnish it or that it should be furnished now, but so that the Board can properly assess the possibilities. The only reason I am mentioning it now is whether there can be some arrangement made whereby the operators of the plant could furnish to the Board or furnish a witness who would give





Jas. R. Donald,

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evidence as to costs and as to probable costs, probable maximum costs that they could pay for gas after the war and meet competition. The thought I had in mind is this that these plants in the States that will be competitors are probably operating on a war set-up as we are now.

THE CHAIRMAN: I think possibly, Mr. Chambers, when the time comes to fix industrial prices those points you have mentioned are very important.

MR. CHAMBERS: The reason I mention it is that maybe some higher officials may have to decide as a matter of policy whether the information is going to be available.

THE CHAIRMAN: That is right.

MR. CHAMBERS: And now might be a good time to start laying the foundation to see whether we can get that information.

THE CHAIRMAN: I discussed that very briefly with Mr. Donald yesterday and he indicated that he was not in a position, for more reasons than one, but the main one is that he did not have the detailed information that we would require. That is why I suggested that his submission would be left in a more or less general form and the matter would be before us. We would know their problems and the details could be obtained at a later date before the prices were fixed. Is that the situation?

A Yes, sir. I might add that the situation is a very complex one. You have ammonia plants operating on coke which can produce very cheap ammonia. Then there is the question of freight. The location of your plant becomes very important. For example, the ammonia produced here although lower in cost than the ammonia produced in the East will probably not be





Jas. R. Donald,

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lower in cost when you deliver it. You get into so many problems and a great many of the factors are going to be unknown.

Q MR. McDONALD: Is there any other ammonia plant further west in America than this particular plant?

A Oh yes. There is the Trail plant and the American plants in San Francisco.

Q THE CHAIRMAN: Do they operate on gas too?

A Some of the American plants do.

THE CHAIRMAN: Anything further?

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Mr. J. B. Webb  
Direct-Exam. by Mr. Chambers  
Cross-Exam. by Mr. Steer

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MR. CHAMBERS: Mr. Chairman, Mr. Webb is available or if you would prefer to recall Mr. Galloway first.

Perhaps I had better call Mr. Webb.

J. B. WEBB having been recalled direct-examination by Mr. Chambers continued:

Q Mr. Webb, you are still under oath?

A Yes.

MR. CHAMBERS: If the Board pleases, I had completed my examination yesterday but arising finally out of what Mr. Galloway said I might want to direct another question to Mr. Webb but I think in fairness to Mr. Galloway I should postpone it until he is here, so Mr. Steer can proceed with his cross-examination.

CROSS-EXAMINATION BY MR. STEER

Q In your experience in the Viking field, Mr. Webb, it is a long distance study?

A To some extent, Mr. Steer.

Q You have not had access to the information on the files of the Northwest Utilities?

A No.

Q And you have not had access to the logs and the history of the various wells that that Company has drilled both in the Viking and the Kinsella fields?

A That is true although there is a great deal of information on file in the Conservation Board's Office.

Q Yes, and you did state in your evidence that to your knowledge Mr. Slipper had studied that situation on the ground for a long time?

A That is true.





Mr. J. B. Webb  
Cross-Exam. by Mr. Steer

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Q And you are aware of that?

A Quite aware of it.

Q Have you had pressure contour maps of the area made?

A No.

Q Have you had pressure converted maps of the area made?

A No Sir.

Q You heard Mr. Slipper say that that had been the nature of his study, to make those maps in his study over a period of years?

A That is right.

Q Then the difference between your evidence and Mr. Slipper's is that you consider the area of the two fields proven to be some 74 square miles, while he considers the proven area to be some 200 square miles?

A That is true.

Q Now we will assume that Mr. Slipper's area of 200 square miles is correct and we will assume that the other data which he gave to the Board are correct, - it would not be surprising to you to find that his estimate of 500 billion or 600 billion was conservative?

A You are asking me that question, Mr. Steer.

Q Yes?

THE CHAIRMAN: It is something Mr. Steer is putting to you.

A Yes. I cannot arrive at the conclusion that 600 billion is proven.

Q MR. STEER: No, I am not asking you that, Mr. Webb. I am asking you if you assume an area proven of 200 square miles, and then I am asking you to assume the other data which Mr. Slipper gave as to porosity and pressure, and then





Mr. J. B. Webb  
Cross-Exam. by Mr. Steer

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I ask you, is it a matter of surprise to you that he should make an estimate of 600 billion?

A It is a surprise to me that he should assume 200 square miles as proven.

Q Yes. Very few witnesses are prepared to make assumptions of that sort in my experience, but I am asking you to assume it?

A All right, I will assume it.

Q You will assume 200 square miles?

A For the purposes of this discussion.

Q For the purposes of this discussion and you will assume the other factors which Mr. Slipper gave in his evidence?

A Yes.

Q Then I ask you is it a matter of surprise to you that he should arrive at an estimate of 600 billion?

A No, it would not be a matter of surprise.

MR. STEER: That is all, thank you.

THE CHAIRMAN: Mr. Fenerty?

MR. FENERTY: No questions.

THE CHAIRMAN: Mr. Harvie?

MR. HARVIE: No questions.

THE CHAIRMAN: Mr. McDonald?

MR. MCDONALD: No questions.

THE CHAIRMAN: Mr. Blanchard?

MR. BLANCHARD: No questions.

RE-EXAMINATION BY MR. CHAMBERS:

Q Mr. Webb, you were present yesterday and heard Mr. Galloway's evidence with respect to the Princess Field. Now I have no particular questions to direct to you but if you have anything





Mr. J. B. Webb  
Re-Exam. by Mr. Chambers

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to say on your own initiative you might do so now?

A A point that I thought would be worthy of consideration was that to my knowledge, having been in the field at the time a number of these wells were being tested by drill stem tests, that water was encountered either in the base of the Sunburst sand or the Chert Zone or Chert Bed. I believe that Mr. Galloway is quite cognizant of that fact. Also I think that most of the results obtained were in the form of drill stem tests. I believe it is generally recognized that drill stem tests, which generally do not extend over a period of a few minutes or an hour, are scarcely a very sound basis for arriving at the field production possibilities, particularly in view of the fact that, as I have said, a number of the wells show the presence of what we call "bottom-water" in the base of the reservoir, even on the higher part of the structure. It was this condition that led me to state in my report that I thought that, although some 80 billion cubic feet reserve was arrived at by the volumetric calculation, and that is very close to Mr. Galloway's more conservative figure, that the actual available reserves, when it came to production, should possibly be regarded as about half of that figure. I believe that in the case of gas fields where water is definitely present in the reservoir, that is considered a conservative practice.

Q Mr. Webb, you mentioned about "drill stem test", that is I take it as distinguished from other kinds of tests; first of all, will you explain to a layman the nature of what a drill stem test is as distinguished from the other tests you have in mind?

A A drill stem test is made in the process of drilling by, -





Mr. J. B. Webb  
Re-Exam. by Mr. Chambers

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without taking the mud and circulating fluid out of the hole, - by running a packer on the drill pipe to a point immediately above the sand that you wish to test. By applying weight on the drilling pipe, the drill pipe packer and the valve may be open which leads into the pipe below the packer exposing the sand or whatever the reservoir may be, to atmospheric pressure and sealing off the column of mud above.

Q The production then I take it is taken from a comparatively small pipe?

A Yes, as Mr. Galloway pointed out, it is usually through a very small tube or valve, a very small opening, and, true enough, the flow of liquid or gas may be somewhat less than you would get if the full hole or the average valve were used.

Q Now what other nature of test did you have in mind, apparently you were distinguishing the drill stem test in your mind from some others, and you thought perhaps there should have been another kind of test?

A You generally speak of "Production Test" as tests after the casing has been run and cemented either above or through the formation. If the casing has been run through the sand and the casing has been perforated opposite the sand formation and the hole then is cleaned of mud and oil and it is then very nearly dry and the formation allowed to flow into the hole, - in the case of an oil well a tube is generally run and the oil flows through the tube and the test may be continued over an indefinite period.

Q The second test you mentioned is more comparable to the natural, actual operating conditions of the well?

A Yes.





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Mr. J. B. Webb  
Re-Exem. by Mr. Chambers

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Q That you are going to take production from?

A Yes.

MR. CHAMBERS: That is all thank you.

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J. O. Galloway,  
Cross-Exam. by Mr. Chambers.

- 1473 -

MR. McLAWS: I probably should have apologized to the Board for not being here before but I think the Board's estimate of one hour for the previous witness was the cause.

THE CHAIRMAN: We were unduly pessimistic.

J. O. GALLOWAY, having been recalled,  
cross-examined by Mr. Chambers.

Q Mr. Galloway, if I recollect correctly you told us yesterday that on the basis of a conservative estimate the figures that you had arrived at was 72 billion and on an optimistic basis it was 138 billion, or thereabout in the proven area of the Princess field. Is that a fair way to put it?

A That was my statement.

Q And that proven area was about 5800 or 5900 acres?

A I believe my statement was that it was in my opinion not less than that.

Q Not less than 5800 or 5900 acres and your mean estimate was 100 billion?

A That was the figure which I selected.

Q Yes. Now -

MR. McLAWS: For the Sunburst?

MR. CHAMBERS: Oh yes. I am talking about the Sunburst now.

Q MR. CHAMBERS: In that area you have now how many producing wells?

A Seven I believe.

Q Not necessarily all in the Sunburst?

A Seven, but that statement taken that way would not be exactly correct. We have drilled I believe ten wells in the area. Two of them have the Sunburst zone open and two are producing off and on during the year from the Sunburst. The other wells are





J. O. Galloway,  
Cross-Exam. by Mr. Chambers.

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finished in such a way that we can gun perforate the casing and open the zone if we so desire. There are seven wells I believe that are in that condition at the present time.

Q And as I understand it, the average depth to the Sunburst zone is around 3165 feet, was it, you told us?

A No, I did not testify as to the average depth as far as I recall. I thought we were talking about the initial well in the area and we penetrated the Sunburst zone in the initial well in the area at 3675, so I gave that figure.

Q Can you give us any idea if you have one what the average depth to the Sunburst would be?

A It is in that vicinity. That well is on top of structure and I presume other wells would be in the vicinity of 3200 if they were not located on top of the structure.

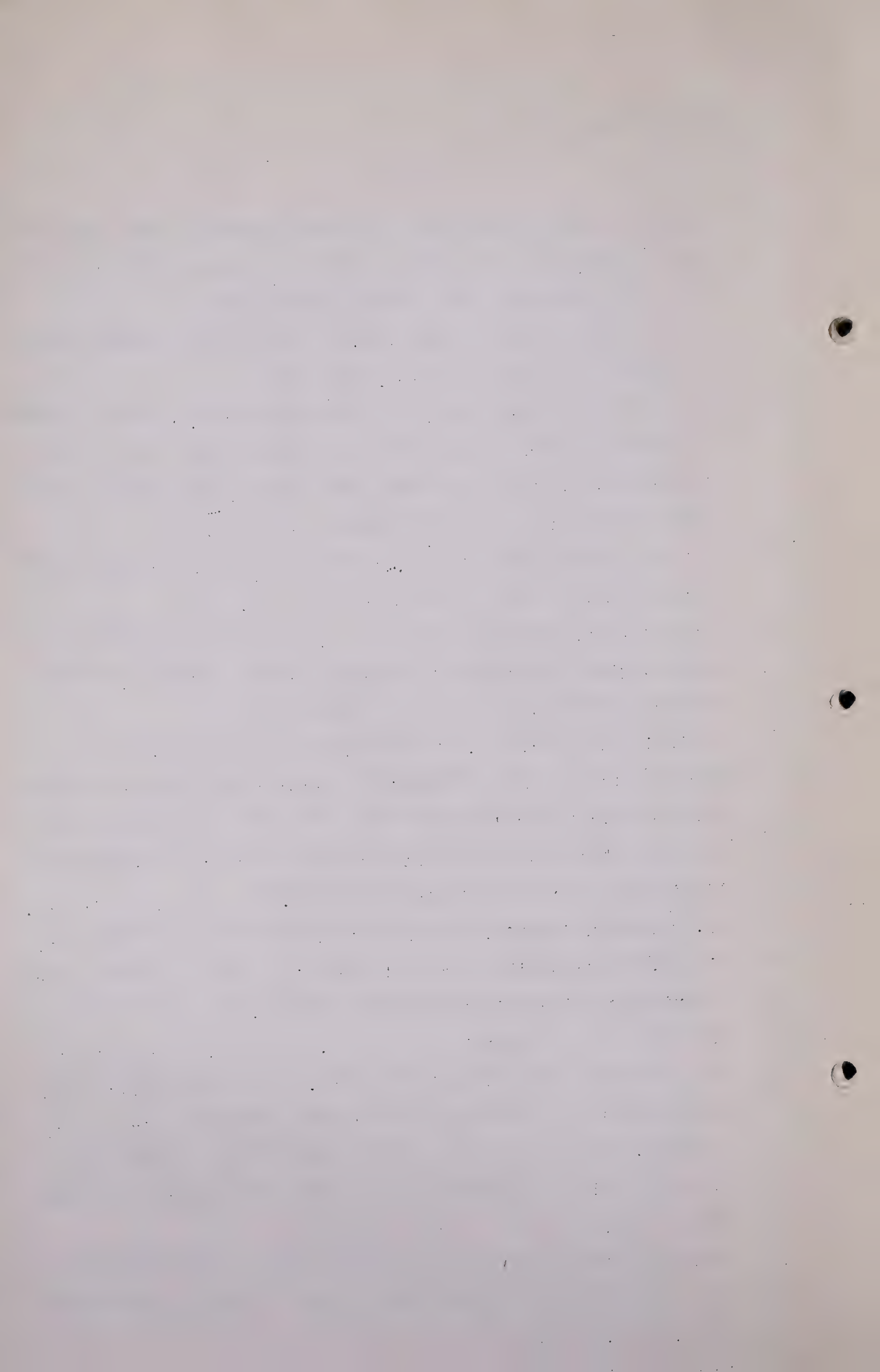
Q To what extent were these estimates of 72 billion and 138 billion based on the drilling stem test. What I am driving at, Mr. Galloway, is this, so far as testing the wells themselves, did you use the drill stem test exclusively for the purpose of arriving at this estimate or the open flow.

A No we used the volumetric method, Mr. Chambers, in computing the amount of gas present in the zone. I think the drill stem test shows that gas is present and that gas can be given up by the sand.

Q But the drill stem test did not enter into the making of your computation, the results of those tests rather?

A I cannot think of in any way but I might have to examine it carefully to make certain, but I do not recall any way it would enter.

Q Could you give us approximately what would be the production, say up to the end of last year, of those wells that have been drilled in this area?





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A No I cannot Mr. Chambers, I have not been particularly interested in it. We have merely used the production from C. P. R. No. 1 and from C. P. R. No. 4 from time to time as fuel in drilling a well or other wells in the area.

Q Could you just roughly tell us now these ten wells, when was the first one completed?

MR. McLAWS: Seven.

MR. CHAMBERS: There were ten drilled altogether. Just approximately?

A I cannot recall. I do recall that when this C. P. R. No. 1 was blowing wild it was in the winter time and I believe it was February or March and that should make it about 1939.

Q Now the others that have been drilled, were they drilled recently or pretty well spaced over the period?

A I cannot recall Mr. Chambers. We were in search of crude oil from the Chert zone which underlies the Sunburst and we drilled I believe seven wells in the area in search of crude oil before we decided that it was too expensive to continue the search, and I believe that we must have - it was several years ago when we stopped the search for crude oil from the Chert.

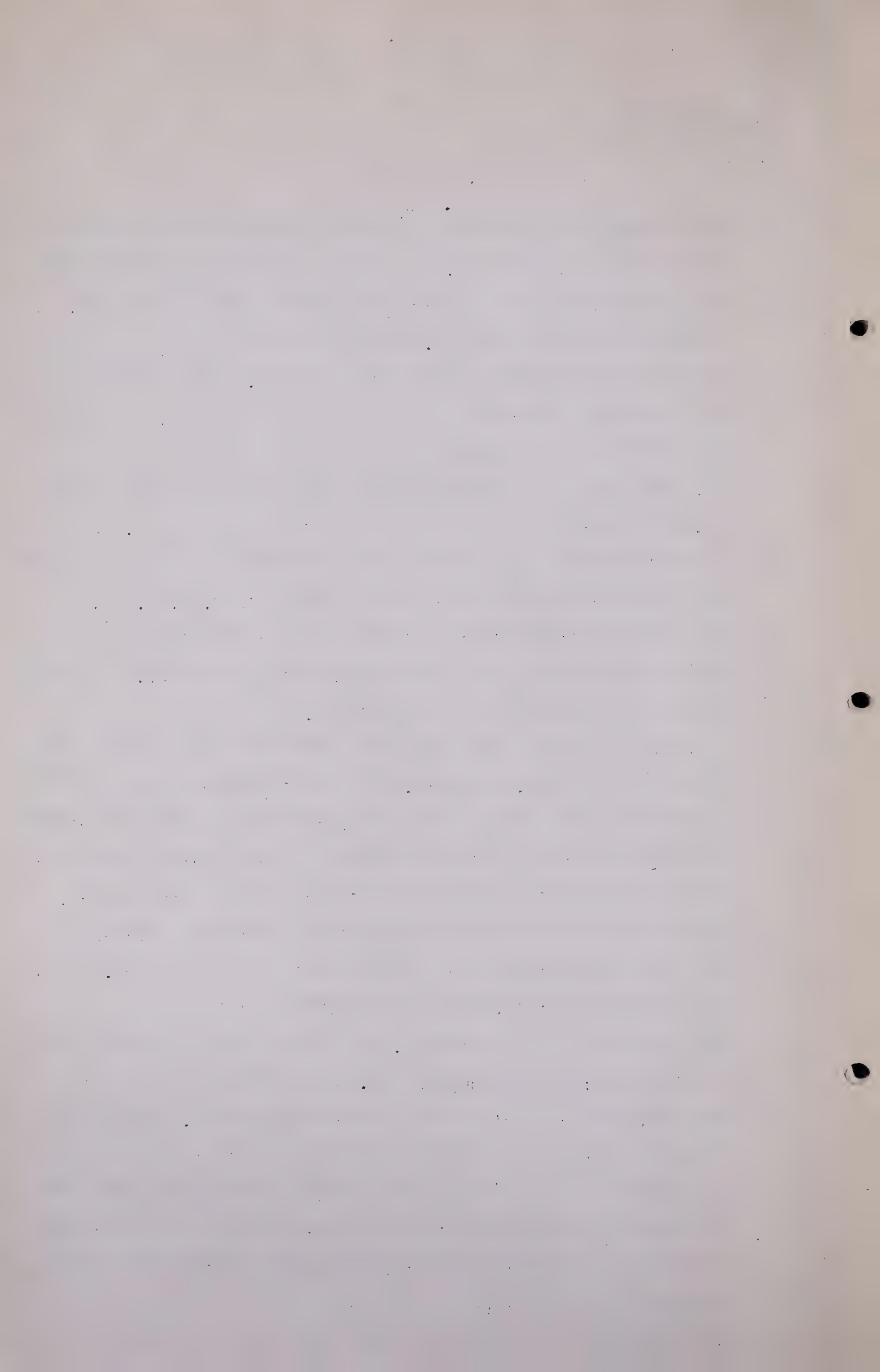
Q Can you tell me this. How many of that total of ten wells were drilled in the last year, in 1944?

THE CHAIRMAN: I suppose Mr. Galloway could furnish that information much easier than trying to recollect.

MR. CHAMBERS: I am not trying to get him to give me the specific dates but a general picture.

MR. McLAWS: That is the reason I asked last night what information you wanted to get so we could get it for you and I took it the information you wanted was the information we had computed.

MR. CHAMBERS: You were assuming a lot of things and





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yesterday he seemed to have quite definite information and there are only ten wells drilled in this area and I thought it was the main operation of his Company in this Province.

THE CHAIRMAN: They have drilled ten or perhaps more in the Taber field.

MR. McLAWS: We will undertake to give you the information.

THE CHAIRMAN: You will do that Mr. Galloway?

A Yes.

MR. McLAWS: Do you want the dates they were commenced and the dates they were completed?

MR. CHAMBERS: No the approximate dates of completion is all I am interested in.

THE CHAIRMAN: I think it is in the records.

A I missed the Chairman's remarks.

MR. CHAMBERS: The Chairman is apparently referring to the fact that in a report of the Conservation Board already filed, it is in that report but cannot be got out very conveniently.

Q Yesterday you referred to a well, Mr. Galloway, which I think blew down the derrick. As I take it, it was the Princess C. P. R. No. 1 well. Is that right?

A I believe that was the well I referred to.

Q That is the one that the derrick -

A Well there were three other blow outs in that general area and I do not know whether the derrick was blown down on them or not, but the C. P. R. Princess No. 1 did have a derrick blown down.

Q And that was the one you had in mind yesterday and the depth that well stood at at that time was around 5200 feet was it not?





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A The depth was 5258.

Q My information, and I get it from a report compiled by Mr. F.K. Beach, Schedule of wells drilled for oil and gas to 1941, that gas encountered at that well at depths from 3408 to 5130 feet was non-combustible. What have you to say as to that?

A Will you read the statement again Mr. Chambers?

Q I will show you the report I have in mind.

MR. BLANCHARD: What page is that?

MR. CHAMBERS: That is Page 49.

A Yes, I think that probably is correct, Mr. Chambers.

Q Now what is the nearest well?

A Pardon me. I thought you intended to pursue that further. If you leave that question, I presume that implies that well was blowing non-combustible gas.

Q No I am not trying to suggest you should not make any explanation you like and do it at this time.

A That record you showed me does not show all the details of the drilling and the testing of that well and such a record to which you refer me should be explained. We have to rely on my memory, but I believe it is good in this instance. After that well was capped and the derrick rebuilt, casing was run to 5520, 7 inch casing and since we have no information on the interval between 3850 and approximately 5520, then drilling time, rate of drilling speed, that is to say occasional cores and showings of oil and gas on the ditch, plus the electro-log which showed little character and apparently is not at its best in being run in limestones in the plains of Alberta. We decided to gun perforate the test at various intervals through the 7 inch casing and I believe that at about 5130 we obtained a flow of approximately 7 million cubic<sup>feet</sup>/of non-combustible gas.



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However, whether or not this gas was contributing to the well when it was blowing wild is something that I cannot say and I would not have very much faith in the statement of anyone else who said that it was. I do not think anyone knows. I do know this, that I was there when the well was blowing wild. I know I could hear it six miles away and I know when I stood on the edge of the property beside my automobile I could wipe a thin film of oil off the top of the car. There was no oil with the gas which we obtained from the perforation at 5130. I do not recall the interval that we perforated at 5130. It might have been twenty or thirty feet, but I do not recall.

Q Now, Mr. Galloway, what is the nearest well drilled in that area, nearest to the Princess C. P. R. No. 1 well?

A Princess C. P. R. No. 6 I believe, of the seven wells which were drilled before ceasing our operations in search of crude from the Chert zone.

Q What I am referring to is, of all the wells drilled up there, which is the one nearest to the Princess C. P. R. No. 1. Is it not 76-22A?

A I do not know. It might be 18 which is due west or it might be 76, or they might be equi-distant.

Q Approximately how close is 76-22A from this Princess C. P.R. No. 1?

A It is approximately 1100 feet, but I am guessing.

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Q What is the status of that well at the present time, the 76-22-A?

A We have just abandoned it.

Q It was a water well?

A No, it was not a water well.

Q Well there was water encountered in it?

A Mr. Chambers, we are searching for crude and this well is not a crude well, so we abandoned it.

Q Well was there water encountered in it?

A There was water encountered in the zone from which we are now producing crude oil in well No. 18, but it has no relation to the Sunburst.

Q And that well was drilled to what depth, I am talking now about 76-22-A?

A I do not recall, but it is approximately 4000 feet.

Q And was there any test made of the Sunburst sand in that one?

A No, I do not recall.

Q And that is the last well that you drilled out there, is it not?

A We are beginning, if we have not already spudded in, well No. 58.

Q But I am referring to the 76-22-A, is that the last one that was completed, drilled down to completion?

A The last well that has been drilled down to completion is 76, that is right.

Q And you just decided to abandon it a day or two ago, or a few days ago?

A I believe last week.

Q Yes, and you do not recollect whether there was any test made of the Sunburst?





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A We might have made a test of it, Mr. Chambers, but I do not recall. I can obtain the information for you.

MR. McLAWS: I will make a note of that and get it for you.

Q MR. CHAMBERS: I have seen in the press, or somewhere, a reference to Princess-C.P.R. No. 18-22-A as the discovery well. Is that known as the discovery well out in that area?

A I could not say, Mr. Chambers.

Q Do you regard it as a discovery well in that area?

A It depends what I am talking about.

Q Well I am asking you, Mr. Galloway, whether you regard it as a discovery well or if you do not want to answer it or qualify your answer, say so?

A Well it is the first well which we have obtained commercial production, in which we have obtained commercial production from the Devonian.

Q MR. McLAWS: It is the first well from which you obtained production of petroleum. I think you are talking about two different things?

A Pardon.

Q It is the first well from which you have obtained production of petroleum?

A Yes, that is what I have in mind.

Q MR. CHAMBERS: And that well is producing somewhere in the neighbourhood of 150 barrels a day?

A I believe it is 120 barrels.

Q And that was completed in 1944?

A That is correct.

Q And it is about a half a mile from the 76-22-A which has been just abandoned, is that right?



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A I do not think so. It is on a diagonal offset. That is to say, it is in a Legal Subdivision to the Northwest of the Legal Subdivision in which 76 is.

Q Do you think it is more or less, I am not trying to hold you down to it.

A I think it may measure around 1500 feet.

Q Now my information is that the Devonian formation in well No. 76-22-A proved to be lower structurally than it was in 18-21, do you recall that?

A Oh yes, that is correct, Mr. Chambers.

Q Now was the Sunburst sand in that well likewise lower than the Sunburst sand in 18-21-A?

A I do not recall but I think that is correct, Mr. Chambers.

Q You cannot tell me whether you tested the Sunburst sand by the drill stem test in all of these wells that you drilled out there?

A No, but, Mr. Chambers, as I recall, we followed the practice in those wells of testing the Sunburst zone in certain intervals as we went through it, until we had drilled approximately seven wells. We might have missed a well, I could not say, unless I looked at the record.

Q Now in these ten wells that you drilled, or at one of them I understand you were interested with another party that you drilled?

A Yes, I believe that is correct.

Q But there are ten wells altogether that you drilled?

A I believe that is correct.

Q Could you tell us in how many of those ten wells that water was shown to be present?

A I do not know what you mean by that. Do you mean at the surface?





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Q No?

A Down 500 feet, or what?

Q Down in the normal producing horizon, the Sunburst or the Devonian?

A Oh, I could not give you that information offhand. It is in the record that you showed me, I think. Whether or not it is in the record I could not say.

Q At least could you remember this, that the water intrusion occurred to such an extent in the one well in the Sunburst sand that it had to be abandoned, and I am referring particularly to the Princess-C.P.R. No. 3?

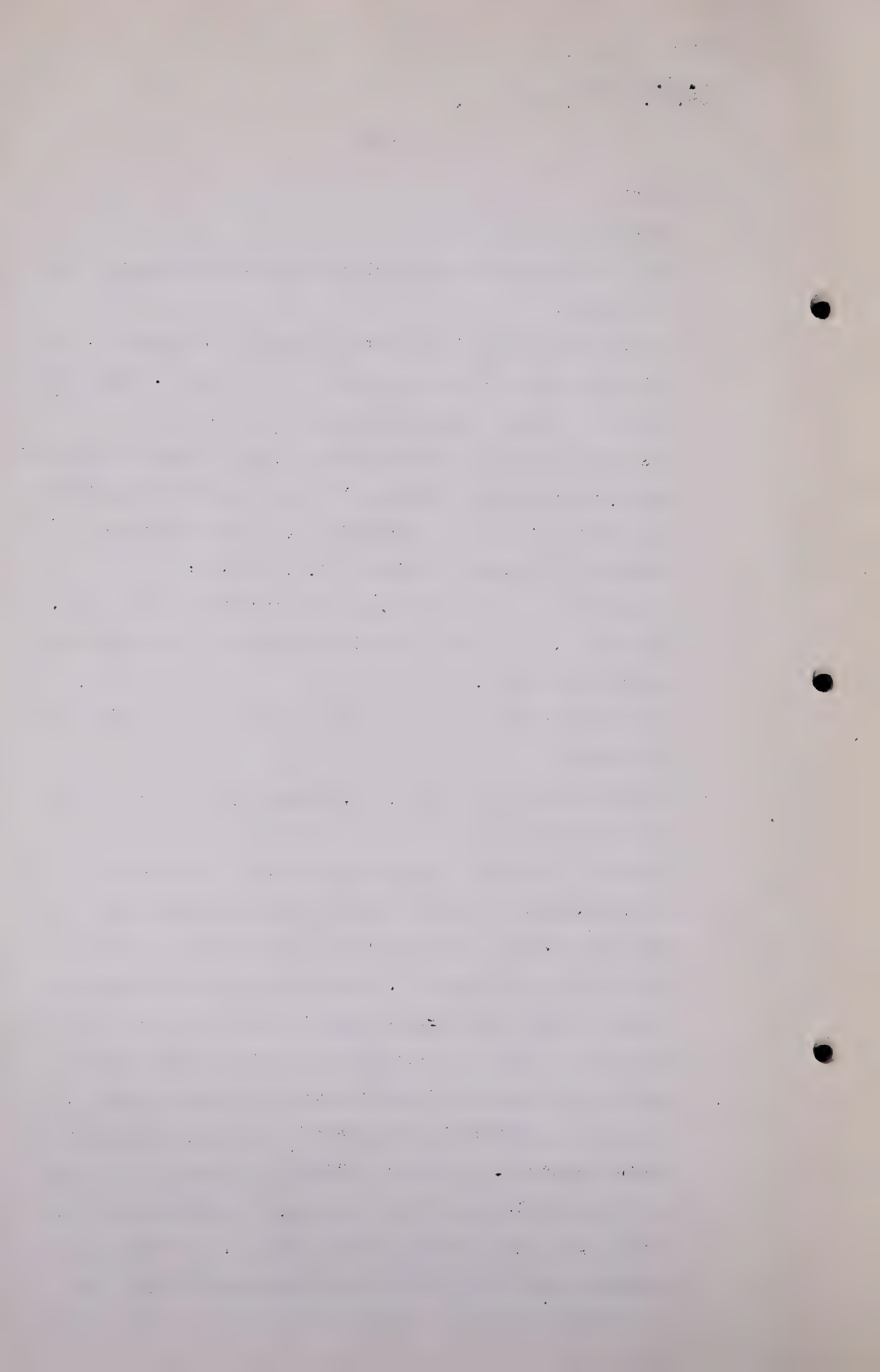
A I would not say that that was a correct statement, Mr. Chambers. It depends entirely on what the operator has attempted to do.

Q What is the situation with regard to that well, has it been abandoned?

A I do not believe it has, Mr. Chambers. It may have but I do not think so.

Q Apparently you have not been very closely in touch?

A No, Mr. Chambers. I have been drilling in other areas since that time. I have forgotten the minute details, but it should be in the record. I might say that my conception of what we have at Princess might be different from the geologist in some other organization who perhaps has not been on the wells since the inception of the project. I should say that in my conception of the stratigraphic picture there. I separate the beds immediately overlying the Paleozoic beds into two parts, the upper Sunburst, so-called, zone, and the lower Chert zone. The Chert zone has water and oil in it and the Sunburst has gas, and much of the difficulty which we experienced in the early





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days in my opinion was due to the fact that we attempted to produce oil with the Sunburst and the Chert both open, and we finally came to the conclusion that we had been in error in trying to do that, so we stopped it. I think I might explain the situation perhaps more clearly to some of your advisers.

Q Well, as I take it, you are not in a position to tell us as to whether any or a considerable amount of water was encountered in the Sunburst sand of the Princess-C.P.R. No. 3 well?

A In my opinion there is no water in the Sunburst sand within the closed structure interval.

Q Let me put it this way: Was water encountered in the well which prevented production of gas being taken from the Sunburst sand?

A I do not believe that that condition exists.

Q All right. Now is it not true that the Anglo-Steveville No. 1 well in that area was an artesian water well?

A I do not believe that is correct either, Mr. Chambers. It depends on what you mean by an artesian water well.

Q Well was the water encountered in it in substantial quantities?

A Again I am sorry to say I do not recall, but I believe Mr. Webb testified to that effect and I am certain.....

Q All I want to know is, I am asking you as to your information, and you say you do not know, is that a fair way to put it? A better way to put it would be that I recall definitely that commercial production was not obtained.

Q And you do not have any recollection that substantial water was encountered in that well?

A No, I do not.

Q All right?



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A There are certain portions of that well that come to me very clearly, because I was interested in certain portions of that well.

Q And the matter of water is not one of them that comes to you very clearly?

A I remember in another zone they got water, but I was interested in other portions.

Q And there was water obtained in that well of substantial quantity?

A Mr. Chambers, I believe so. I do not believe that you can drill a well anywhere without getting some water, at least that has been my experience.

Q Anyway, as I understand it, the Anglo-Steveville No.3 well was in the vicinity of this 5888 acres, in the fairly close vicinity.

A I do not know what you mean by vicinity.

Q Well how far away is it from the nearest point of this 5888 acres you have been talking about?

A It is outside of the closed contour.

Q Yes, but how far, a mile, ten miles, or a thousand yards?

A I think it is less than a mile.

Q My instructions are that it is around half a mile, and you are not quarrelling one way or the other, whether it is a half a mile or what?

A That would be correct as far as my statement is concerned too. I think I said it was less than a mile.

Q Now, Mr. Galloway, turning to your evidence yesterday on page 1436 of Volume 18, and I am referring to this part of the evidence;

"Q But your work has given you some information as to the probabilities of additional gas





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" fields in that immediate district or that general district?

A Are you referring to the Princess?

Q The Princess district and the general district?

A Yes. It is my personal opinion that that area will be one of the greatest gas producing areas in Western Canada.

Q Do you believe it will ultimately be able to supply the entire requirements of this gas distributing system for Southern Alberta?

A I do."

Now, merely for the purpose of getting it clear on the record, I would like to get what you have in mind in reference to "this gas distributing system for Southern Alberta," and also what you mean "for Southern Alberta"?

A All I have in mind is just Southern Alberta.

Q I know, but what?

A Southern Alberta gas system.

Q Do you mean including Calgary south or referring to the Lethbridge district mostly?

A Well I was thinking of Bow Island. That is where the line ends, is it not?

Q Yes, but you were talking about being able to supply the entire requirements of this gas distributing system, and you talk about the entire requirements. I just want to get clear what you have in mind.

A Yes. I think that eventually or ultimately sufficient gas will be developed in the general Princess area to supply the present requirements of the system, by putting the gas in at Bow Island. Does that answer your question?





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Q I am still not clear.....

Q MR. McLAWS: What did you mean by the system, Calgary and Lethbridge and all places, or just Bow Island village, or Lethbridge city?

MR. CHAMBERS: Well I think in fairness, the witness swore to this yesterday, and I am entitled to ask him without the benefit of counsel, what he had in mind.

MR. McLAWS: Just reading the question, you are asking him what the question meant. Surely that is what he intended to mean.

Q THE CHAIRMAN: I took you to mean, Mr. Galloway, by that statement that there was sufficient gas in the Princess field to supply that which we know as The Calgary Gas Company, without restricting it to the City of Calgary. That is what I took your statement to mean?

A Well I meant to say, Mr. Blackstock, that it was my opinion that ultimately sufficient gas would be found in the whole general district to supply the system which now extends from Bow Island up to Calgary.

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Q MR. CHAMBERS: And when you talked about that you had in mind more than the reserves that are in the 5,880 acres?

A I think I said that, Mr. Chambers.

Q Yes, well that may be so, but in view of the discussion and so that there will not be any misunderstanding and in fairness to you, I want to get what you had in mind.

As I have said, the 5800 or 5900 acres is more or less regarded as the proven area out there at the moment?

A That is right.

Q You are not suggesting that the proven area of 5800 or 5900 acres could supply the entire gas system, the entire requirements of the Canadian Western Natural Gas, Light, Heat & Power Company Limited, which includes Calgary and all parts south that have natural gas?

A No, I am not.

Q You had in mind that the gas from the Princess area would be piped to the Bow Island district and connect up with the Gas Company's existing system in that vicinity?

A Yes.

Q How many miles of line roughly, or what distance approximately would it be from the Princess field down to Bow Island?

A It would be dependent upon the direction that you took. I do not know whether it would be advisable to tie into Bow Island or perhaps Barnwell. As a rough measure you could take 56 to 60 miles.

Q So there should be no misunderstanding, I am interested in knowing how many miles of pipeline you figured on building when you quoted this 7<sup>1</sup>/<sub>2</sub> cent rate.

A I am sorry, Mr. Chambers. I did not know you were leading up to that point, because I do not know that I said what





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you just said.

Q If you did not, correct me, and let me know what you did say. In fairness to you and myself that is certainly the impression I got from your evidence yesterday that you quoted or that you said that you were prepared to deliver gas at  $7\frac{3}{4}$  cents.

A I thought the statement was at a higher figure than that.

Q Give us again what you had in mind.

A I will have to go back to the record..

THE CHAIRMAN: Page 1437, Mr. Galloway.

DR. BOOMER: And page 1448. The top of page 1437 and the top of page 1448.

A Yes, my answer in the middle of page 1437 is "It would depend on the amount of gas which could be sold by the California Standard Company. If the Company could be assured of an outlet for at least 15 million cubic feet per day, it could be sold at Bow Island for that price." I had in mind that it could be sold at a profit. I had nothing else in mind.

Q Now you did not just pick the  $7\frac{3}{4}$  cents out of the air. What I am trying to find out is how much thought has been given to this and have you done any figuring or have you taken into consideration the number of miles of pipeline that you are going to build?

MR. McLAWS: Why do you say that the figure of  $7\frac{3}{4}$  cents was picked out of the air? I asked the question and I asked what price was being paid for gas in Turner Valley and I was told  $7\frac{3}{4}$  cents. It was not anything out of the air.

THE CHAIRMAN: Your question went further than that. What you asked the witness was a price comparable to the





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price paid in Turner Valley.

MR. McLAWS: Yes, that was the question. We did not pick it out of the air.

THE CHAIRMAN: The witness' answer really was it was a comparable price to  $7\frac{3}{4}$  cents.

MR. McLAWS: Yes.

MR. FENERTY: There was not the slightest suggestion that it could not be done at a less cost.

MR. CHAMBERS: As I got it, he was not even too sure what that price was.

MR. McLAWS: Why do you say that? Why make a statement out of the air? If you are asking the witness about this, read what he said. You can read.

MR. CHAMBERS: If I have made a mis-statement, I suggest that you correct me.

MR. McLAWS: No, I say when you make a statement like that, read it to the witness. You are making a statement to the witness of what he said. You have the record there and you can read it.

MR. CHAMBERS: If he disagrees with my interpretation of what he said, he is entitled to explain it.

MR. McLAWS: If you cannot understand the English language and read it, we are not responsible for what interpretation you take out of it. You can read the question and ask him if that is right.

Q MR. CHAMBERS: On page 1437 there when you put the question to him "Can you say whether, if pipe was available and you could supply gas, could you supply gas into this Southern Alberta system at a price comparable to what is now paid at Turner Valley?" and you say "which I understand is  $7\frac{1}{2}$  cents" and the Chairman corrected you and said  $7\frac{3}{4}$  cents.



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I suggest that you at least did not know what the Gas Company price was.

THE CHAIRMAN: This is a storm in a teacup. Let us get on with the Cross-examination.

Q MR. CHAMBERS: All I am asking this witness is the number of miles of pipeline he figures he would have to build from the Princess field to the Bow Island field in order to supply gas at the price that the Gas Company is paying in Turner Valley.

A Again I would not state it the way you state it, Mr. Chambers. I think the better way to state it would be it would require approximately 56 miles of pipeline from Princess to approximately the Bow Island end of the system so that that gas from Princess could be sold at a price comparable to Turner Valley.

Q You had that in mind yesterday when you answered the question at page 1437?

A That is correct.

Q What size pipe did you have in mind?

A 14 inch, I believe.

Q And in addition to that there would be a gathering system of some kind in the field itself to collect the gas and put it into the main?

A I think that would be necessary, yes.

Q You had that in mind also in answering the question at page 1437?

A Well frankly, I did not have all that in mind in detail. Mr. Chambers, the question was put to me so that I answered it in a way which - or perhaps I should say the question was put to me and I took it in a way to mean that there was a





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competitive angle to it. If I can enlarge on that and give you my point of view. I have not gone into it in detail . . .

Q Now that may save a lot of questions. I gather from the discussion this morning that you have not sat down and done any specific preparing of any specific engineering data as to construction or as to cost.

A No, I have not. I did not go into that.

Q That is all I want to know. I understood you to say, and you can please correct me if I am wrong, that when you made that answer you had in mind that you would get a definite load of 15 million cubic feet per day or in that vicinity.

MR. McLAWS: Average.

MR. CHAMBERS: Average. That is the point I want to get clear.

A You want me to answer that?

Q Yes.

A Well I had in mind that in thinking of it the way I did, I had in mind that it would not be considered normal by the supplier . . . . I am sorry, I missed the question. I was thinking and I lost it. Would you please read the question.

(By the reporter reading) "Q. I understood you to say, and you can please correct me if I am wrong, that when you made that answer you had in mind that you would get a definite load of 15 million cubic feet per day or in that vicinity."

A Well the answer to that is I had in mind that the supplier of the gas to Bow Island would require a certain gross revenue and having that gross revenue, by good management he should be able to make a profit. So I took the question purely from the competitive angle.





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Q This question of peaks is quite important out in this cold country, is it not?

A I would think so. It is very important to me.

Q And on some of these systems you know we have a very light load in summer and in the winter the load is several times higher. I am suggesting that information. Did you have in mind that your load over this line that would be built from Princess to Bow Island would be subject to those fluctuations or was it to be an even load?

A I think I stated 30 million feet would be the maximum.

Q Daily?

A Daily.

Q Down to a minimum of - that would work out on an average of around 15 million a day?

A That is correct.

Q My recollection is, and correct me - I am not trying to catch you on anything - that you had also in mind certain specific conditions; that you would have a monopoly in the field so far as the marketing of that gas, was I right in that?

A I believe I did say something along that line.

Q Would you just enlarge on that?

A Well Mr. Chambers, for the moment I guess I let my Scotch instincts get the better of me. I was thinking of it more from a business man's point of view. It probably had very little relation to the matter and to the question. It would be inconceivable to me if one operator would have a pipeline from Princess and another one from Rainy Hill and both of them tying into the line. One line economically should handle it.

Q Let me suggest this to you and I am doing it just for the



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purposes of discussion. That under this Act that line built would be a public utility and a common carrier of gas. Now assuming that that is so, your company in entering into a contract, I take it, you would be subject to - I won't say disadvantages but to the limitations of public utility control and you would be expecting the protection of it that usually goes with it. Is that a fair way to put it?

A Mr. Reporter, I will have to ask you to read that again to me. I missed it somewhere.

(By the reporter reading) "Q. Let me suggest this to you and I am doing it just for the purposes of discussion. That under this Act that line built would be a public utility and a common carrier of gas. Now assuming that that is so, your company in entering into a contract, I take it, you would be subject to - I won't say disadvantages but to the limitations of public utility control and you would be expecting the protection of it that usually goes with it. Is that a fair way to put it?"

MR. McLAWS: I think any question that takes over a page should be submitted to the witness in writing possibly.

MR. CHAMBERS: If he cannot answer it, he can say so. I do not think he needs any protection from counsel at this stage.

A Well I would prefer it, Mr. Chambers.

Q Beg pardon?

A I certainly would prefer it. I am assuming of course that the California Standard or any other company would expect and I think the operator of the initial pipeline from here to another area should have the right to extend his lines to get other gas into those lines from other operators. I think





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it is to the best interests of the Province and possibly to  
everybody concerned.

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Mr. J. O. Galloway

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Q But with that, you are familiar to a certain extent with Public Utility practices in the States and here, are you not?

A Oh in a casual way, Mr. Chambers.

Q Yes, and that we usually speak of these utilities as being "properties devoted to the public service", you have heard that term?

A Yes, Mr. Chambers.

Q And one of the attributes of Public Utility regulation is to control the profits, as well as to see it is an efficient operation?

A Yes, I believe that is correct.

Q Yes?

A In view of the fact I am sitting here, I would like to change that a little bit because Mr. Blackstock might come into it some day. I would not say that Mr. Blackstock or any Utility Board would control my profits. I would think they would insure them.

Q That is the point I am coming at, if they are going to limit you on what you can make, they also insure you reasonable rates to see that you make a certain profit, do they not?

A Yes. We might not agree as to how much the profits should be.

Q No.

Q THE CHAIRMAN: And probably would not?

A We would not, that is correct.

MR. FENERTY: If it was sufficiently devoted to the public service.

Q MR. CHAMBERS: So that if in building this line from



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Princess to Bow Island you were subjected to Public Utility regulation your Company would expect the benefits as well as the limitations which usually go with Public Utility regulation, is that not a fair way of putting it?

A If we take your assumption that the California Standard Company is building it as correct, I might be able to consider the rest of your question.

Q I am asking you to assume that what I am telling you is so and if it is not so you are not bound by your answer; I am asking for your answer on an assumed state of facts?

A Would you like to have me, or have the Reporter read that question again please?

Q Yes

(Reporter reading ) Q."So that if in building this line from Princess to Bow Island you were subjected to Public Utility regulation your Company would expect the benefits as well as the limitations which usually go with Public Utility regulation, is that not a fair way of putting it".

A I think a better way to put it, Mr. Chambers, would be that any company or operator who built a line from Princess to Bow Island would be entitled to fair dealing.

MR. CHAMBERS: That is a good enough answer to my question and that is all I want, thanks.

MR. FENERTY: There are a couple of questions I would like to ask.

THE CHAIRMAN: Yes.

CROSS-EXAMINATION BY MR. FENERTY:

Q Mr. Galloway on page 1448, you were asked:

"Have you considered the cost of moving your gas from Bow Island up to say Okotoks or Calgary", and





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your answer was:

"No, I had in mind that it would be sold at Bow Island,  
and we would have no further interest in it."

Now my understanding is, and I want you  
to tell me if I am right, that by reason of your initial  
pressures there, you would be in a position to deliver at Bow  
Island at a pressure which would ensure delivery to Calgary  
without the necessity of booster or compressor pumps, is that  
right?

A I am so informed by engineers.

Q Yes?

A Certainly for a certain length of time.

Q Yes. Now going back to this page 1437, and I am not going to  
attempt to go into the figure of  $7\frac{3}{4}$  cents, but I just want to  
get the general picture here, you did not intend to convey by  
your answers there, when you said you would be prepared to take  
a contract to deliver gas at  $7\frac{3}{4}$  cents, you did not intend to  
convey that that was the minimum at which it could be handled  
commercially, did you?

A I think I implied that, Mr. Fenerty.

Q What is that?

A I think I implied that.

Q I am just wondering whether you meant to imply that?

A I meant to imply there must be at least 15 million cubic feet  
per year.

Q Yes, but what I am getting is, it is not just coincidence that  
this  $7\frac{3}{4}$  cents appears there, all you were saying is that that  
figure would apply as a minimum?

A I am sorry but I did not consider it in that manner, Mr.  
Fenerty. I had in mind that the gross revenue at Bow Island





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would be in the neighborhood of \$425,000.

Q Yes?

A A year, and with that price in mind I would not want any less, - that price in mind it could be sold at Bow Island for a profit.

Q I understand you would not want any less, but it is quite true is it not that at that time when you were talking about the existing prices, I think at that time you were under the impression it was  $7\frac{1}{2}$  cents?

A Oh I have known for many many years what the price of gas is.

Q What?

A I have known for many years the price of gas.

Q You were aware of it?

A Yes, although I took no part in the  $7\frac{1}{2}$  cent controversy.

Q Now I just want to see if I got the right impression from what you said a little lower down on that page 1437, your answer was

"I may say this, from a practical point of view, I would not want my offer to be rejected if they were talking of a little less figure."

Now I think I know what that means but I am going to suggest, - what I am going to suggest to you is that, as you have told Mr. Chambers, that you had not figured your details or the exact cost of your pipe line and so on, you have not gone into those in detail, but what I am going to suggest to you is, when you were talking about the figure of  $7\frac{3}{4}$  cents as a good business man and an engineer, you felt you had a figure there which would give you safety without any too exact examination of your actual cost?

A No. Again I had in mind a figure of approximately \$425,000. If the revenue turned out to be \$412,000, it might be, if I reconsidered all of the other factors involved, that I still



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could handle it at that gross revenue. I certainly would not want to be excluded from it until I had an opportunity to study it.

MR. McLAWS: May I interrupt, Mr. Fenerty, I think that figure had reference there to "15 million", and not to the price.

MR. FENERTY: Oh I see, "a little less figure", yes, of 15 million. I am sorry, yes, there is no question about that.

MR. McLAWS: There is no question about it.

Q MR. FENERTY: But Mr. Galloway, is not this just as practical, is this not true and I do not want to go beyond this, that at this  $7\frac{3}{4}$  cents you had in mind that you did not have to figure too closely on all your costs before you said you could handle it, is that not right?

A No, that is not the correct way to put it. Let me state it another way, in the course of searching for petroleum we developed a substantial gas reserve. It had no market. It is lying out there. In my opinion additional gas reserves can be developed if there were a market.

Q Yes I understand?

A The only way as I see it by which a market could be obtained for that gas is to obtain that market on a competitive basis.

Q Yes, I understand?

A Now in doing that I must consider a few, - in a broad sense a few terms, - one I have to consider is the gross revenue and whether or not we can make a profit with that.

Q Let me put it this way then, you would be very glad to meet that competition of  $7\frac{3}{4}$  cents, that was your position, was it not?

A I stated in the beginning or rather, pardon me, Mr. McLaws stated and I concurred without saying so, that we were not





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seeking this market at this time under these conditions.

Q Yes, I understnad?

A But that we did not want to be excluded from it, we wanted to be considered.

Q Yes?

A And I can conceive a condition which under the nature of the competition I can meet.

Q I will put it to you again, you would be happy at those prices, is that not it?

A I would if all the other factors which I have in mind also fit into the picture. It is difficult for me to agree to something of which I know nothing of the effect.

Q Well that was a fair question, was it not, if you think you would be unhappy about it why not tell me, - I take it the effect of your evidence is that you would be quite happy to deal at that price with that minimum of 15 million?

A My statement was, I believe, that if the company could be assured of an outlet of at least 15 million cubic feet per day it could be sold at the well for that comparable price or that price.

Q Yes, and you would be prepared to drill more wells for gas at that price, and to handle the thing as a commercial transaction?

A That would necessarily follow I think.

MR. FENERTY: Yes, thank you.

THE CHAIRMAN: Mr. Harvie?

MR. HARVIE: I think Mr. McDonald might follow.

THE CHAIRMAN: Mr. McDonald. However, Mr. McDonald, I think perhaps we will adjourn for a few minutes now.

(A short adjournment was here taken)





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(After adjournment)

CROSS-EXAMINATION BY MR. MCDONALD:

- Q Mr. Galloway, since you have discovered this gas reserve, you have given consideration to the market value of gas on behalf of your Company?
- A Well I have given consideration to getting it to market, getting the gas to market so that we can make a profit out of it.
- Q And did you have in mind selling the gas which you had, you were going to sell it to a purchaser?
- A That is correct.
- Q You did not have in mind I take it, that you were just providing a service, that is your Company was providing a service?
- A Oh no, I am very much interested in making a profit.
- Q I mean a matter of service from the ground to the ultimate consumer, but you look for something more than just a return on your money, that is a return on your investment?
- A Yes.
- Q Now from your consideration do you think that gas has a market value in itself?
- A Yes I think so.
- Q Gas being used for other purposes than for heating purposes?
- A Yes.
- Q And in considering it in detail, with the present plans and developments in the use of gas, it indicates that it has many other uses than for heating?
- A I think that is correct.
- Q Your Company would be placed in this position, that you



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would be considering the value of this gas, in accordance with the value of it as gas?

A I do not know exactly what you mean. It is my opinion that this Company would be entitled to a price for its gas which would give it a reasonable profit.

Q THE CHAIRMAN: But I think what Mr. McDonald is trying to get at, Mr. Galloway, is the suggestion that the gas has a value, apart altogether from the mere cost of bringing it from the formation to the surface, is that right, Mr. McDonald?

MR. MCDONALD: Yes.

A Well I missed that, Mr. McDonald.

Q THE CHAIRMAN: A commodity value apart from the cost of bringing it to the surface.

MR. McLAWS: Gas in place depending on the location.

THE WITNESS: I do not know how to answer that statement. Gas certainly has a value if it can be used and I feel certain that that value is a competitive one or based on competition under our present scheme of things.

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- Q And in addition to competing fuels a value could be put on it with regard to other uses to which it could be put. For instance it might be made into gasoline?
- A Yes, and if the gasoline could be extracted and sold at a profit that might lead us into a little more complex situation that just this statement implies. There might be other factors involved. It might be to the operator's advantage to put the gas back into the ground and if it were the operator would have to weigh the profit from the gasoline as against the cost of extracting and then later putting gas back into the ground.
- Q I am not thinking of extracting gasoline. I am thinking of the process which manufactures gas into gasoline and no other commodity. I am thinking of the gas?
- A I understand that has been done in the laboratories and I believe it is being done in some of the plants in the United States, but I am not very familiar with it, Mr. McDonald, and I do not know whether that is a war measure which is only justifiable in times of war, but I am sorry I do not know very much about that.
- Q In any event I take it your Company wants something, a price for its gas as gas. They are selling something and not performing a service in delivering this gas?
- A That is correct. My Company would want a price for its gas which would return it a reasonable profit.
- Q Now what is a reasonable profit in your business?
- A A reasonable profit is something that is difficult to define. It varies and again it is based on competition.
- THE CHAIRMAN: And may depend upon the imagination even?
- A It certainly depends upon the individual. One man will say a reasonable profit is not reasonable, whereas another operator might be very happy to get it at that profit. So it is





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difficult to say what a reasonable profit is. The reasonable profit to me is a profit at which I would be satisfied to sell gas.

Q MR. McDONALD: I have been informed that it is a general rule in both the oil and gas business, unless you get at least 100% profit over a very limited time you won't stay in business very long. Is that a general rule in gas development?

A Are you speaking of gas producers?

Q Yes, gas producers and oil producers.

A I never heard that statement before, Mr. McDonald. I would hesitate to believe it. I think there are a lot of people in business who are not making 100% profit.

Q 100% on their investment, that means return of investment plus 100%.

MR. McLAWS: Do you mean per annum?

MR. McDONALD: No, from each successful exploitation.

A I am not familiar with that statement and I would like to know from Mr. Blackstock whether the Utilities Board would permit that.

THE CHAIRMAN: If so you would subscribe to that statement?

A I am very happy to if that is correct.

Q MR. McDONALD: Now dealing with these wells your Company has drilled in the Princess field. I take it they are C. P. R. Princess No. 1 drilled?

A Yes.

Q And is now capable of producing from the Sunburst sand?

A It is now furnishing fuel from the Sunburst sand.

Q C. P. R. Princess No. 2?

A Yes.

Q And producing from the Sunburst sand?



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A No, it is shut in but can be opened up by perforating the casing.

Q C. P. R. Princess No. 3 has been abandoned?

A I believe C. P. R. No. 3 is shut in also and can be opened up by perforating the casing.

Q At the Sunburst sand?

A At the Sunburst sand.

Q No. 4?

A No. 4 is producing now and I believe fuel is being taken from it today.

Q No. 5?

A No. 5 was abandoned because it did not fit into the scheme of things. Although it showed gas from the Sunburst.

Q Do you know how much?

A I can only say from memory four or five million cubic feet per day. Four or five I think.

Q And Standard No. 6?

A No. 6 can be opened up for production from the Sunburst by perforating the casing.

Q And No. 7?

A No. 7 I believe we abandoned, although it showed quite a bit of life in the Sunburst. I do not recall the reasons why we abandoned the well if we did abandon it, but I think that is what we did.

Q Now that No. 7 well was the most southerly well that you drilled in this group?

A Yes.

Q I think it is LSD. 15, Section 12?

A No I cannot say that it is the most southerly well. I think it is the farthest south-east. Because we were also interested in





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the drilling of the McDougall-Segur, and I do not recall whether it was more southerly than 7 or not.

Q Now the McDougall-Segur well is south-west of No. 7?

A Yes.

Q It is in LSD. 3 of Section 11, Township 20, Range 12, West of the 4th Meridian?

A I think so. I do not have a map before me. I know it is west of No. 7.

Q What was the Sunburst production in that well?

A I do not recall but I think it was substantial and my recollection is that well can also be opened up to the Sunburst by perforating the casing.

Q It is marked on the record as abandoned?

A Oh it may be that in the sense of that record it is abandoned.  
THE CHAIRMAN:

Q Abandoned as an oil well, is that it?

A But the well is left I believe, basing again on my recollection, the well is left so we can go into the well. Casing is in it and it has been set in the Sunburst so we can go into the well and we have left it in that sense we have abandoned, but in the sense we think of it, we have merely suspended operations until such time as we desire to take the gas from the well.  
MR. McDONALD:

Q With regard to Anglo-Canadian No. 3, that well is situated north-west of your No. 7 well?

A I remember the well quite well. It was drilled by another Company.

Q Do you know if that was producing in the Sunburst?

A I do not think it did. I believe it was abandoned. By that I mean they have ceased operations permanently.

Q As I understand your answers to Mr. Chambers, you said you thought that well was not on structure. It was outside of





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the limit of the area that you had in mind. Is that true?

A It is difficult for me to express myself in that regard. If I say I speak as a layman or as a geologist. Speaking as a geologist it is on structure, but I believe it is outside the closing contour of that structure.

Q Now that would give you the exclusive control to the north-west in this particular area, this 5900 acre area?

A That would give us control on the eastern side of the structure.

Q I am sorry, I meant north-east.

A Not necessarily north-east, but on the easterly flank of the structure. One would have control by reason of the data obtained from that well.

Q Have you drilled further north any well to give the same limitation of the eastern contour?

A Do you mean along the eastern flank of the structure?

Q Yes.

A No, unless our C. P. R. No. 6 is partially on the east flank. I do not recall. It may be on the north-west plunge. We have other data upon which we base our geological structural conclusions.

Q Would you say that the wells you have drilled are pretty well on the crest of the structure?

A No we have drilled some on the crest and some not on the crest.

Q I notice that they are all drilled within an area of say roughly a mile along the structure?

A You might be partially correct in that regard. We have additional control with the Anaconda Patricia well which was drilled north-west of our holding along the north-west edge and which showed some oil in the Sunburst.

Q What was the gas in the Sunburst?



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A There was no gas. We considered this well which was quite low to be outside of the gas-oil content.

Q So that you have a limit to your field to the north-west?

A I believe so.

Q Now as I understand it then there are about three wells abandoned out of the ten wells. Would that be a fair run of luck in drilling in that area?

A I do not know what wells you have in mind, Mr. McDonald.

Q Well there is the Anglo No. 1, the McDougall-Segur, and No. 5. Would you still say they are productive in the Sunburst?

A Well two of them are. The Anglo-Canadian well, of course, is outside the productive area on the structure.

Q What have you got to say about the migration of gas in this Sunburst sand, moving from well to well?

A Yes I think it will move very well.

Q What have you to say as to drilling patterns. Are you going to drill a well to every 40, quarter or one section?

A No we would not drill a well to 40 acres and our exact pattern would be dependent I am sure to the data obtained by the drilling of wells as we drilled up the structure. I do not think - or rather I believe as a matter of practice, that gas wells can be drilled farther apart than oil wells.

Q Would it be four wells to a section?

A Well that is difficult. I do not believe it would need that many.

Q You may not need that many?

A I may not need that many. I probably should say that in my mind a distinction is very clear between what a producing area may produce under one type of practice and what it may produce under what may be called by engineers, good practice.





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- Q Would it be good practice do you think in this case to drill, say, two wells to a section or one to a section rather than a close pattern?
- A It would not be good practice for me to set up that policy at this time because I would have to drill wells and make tests and obtain other data before I would know the proper spacing that should be applied to the field. I do not have that information at this time naturally.
- Q The spacing of wells will have quite an effect on the economy of your operations. If the wells are widely spaced you are going to have a greater cost of gathering system than you would otherwise have?
- A I did not get that.
- Q If your wells were widely spaced you would have a much greater cost of gathering gas because your pipe lines would be that much longer?
- A I do not believe that would be an important item, Mr. McDonald, unless by widely spaced you mean in the next Township and I do not have any such idea as that in mind.
- Q Now in this 5900 acres, Mr. Galloway, does your Company control all the acreage itself?
- A No, it does not, but I believe that we control 90% or possibly a little bit more than 90%. Again I have not computed that accurately.

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Q Now do you think that production on those 5900 acres will affect the gas reserve on the adjoining acreage that is not controlled by you?

A If we were allowed - do you mean if we were allowed to produce the well or rather if the operator who owned the other land could not offset our land, is that what you mean?

Q Yes?

A Then the answer would be yes.

Q The answer would be yes?

A Yes.

Q That is to say if your wells were the only ones producing and your pressures went down it would naturally follow that the gas would migrate from the adjoining areas into your area, would that be true?

A I believe it would. Certainly the adjoining property would be affected by the loss in pressure, the adjoining pressure.

Q And the gas would migrate?

A Yes, I think so.

Q Now I mention that, Mr. Galloway, because of your remark on page 1442 of the record yesterday, in reply to a question by Mr. Blanchard, the answer at the bottom of the page. Your answer is:

"A It is pretty difficult to answer your question without stating that I must be given other factors. If I were to be assured of a market of 15 million cubic feet a day then I would take the contract and I would then conduct a search as economically as possible in the Princess area for gas. I have not done so yet, but I might say another thing that I would



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" expect to be given the sole right to take gas from that area wherever it might be found.

Under those conditions the answer is, yes."

Now in making that reply, Mr. Galloway, did you have in mind that gas must be produced only from your wells?

A No. On the contrary I had the opposite in mind, that if there was gas adjoining my wells that was available that I would have the right to take that gas.

Q You would purchase it then?

A Correct.

Q From the adjoining operator?

A Yes.

Q And how would you fix the price?

A I thought Mr. Blackstock would do that.

THE CHAIRMAN: On evidence given by skilled persons like yourself, Mr. Galloway.

A I would be very happy to lead the evidence, whatever is wanted.

Q MR. McDONALD: In other words, your attitude is, I think, Mr. Galloway, that having provided the pipe line to service this field, you want the right to transport the gas that is produced in that field under the provisions of the Act, of the Natural Gas Utilities.

A Well I would like to have it some day, Mr. McDonald.

Q Well I would take it that unless you do get that right, that that was one of the factors of limitations in your reply to Mr. Blanchard's question?

A Perhaps it was an unnecessary limitation because I believe under The Pipe Line Act I would come under it anyway, I suppose.

Q DR. BOOMER: You would not have in mind in that





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answer that you needed the right to get all the gas from the field to assure a reasonable life?

A No, I did not have that in mind. I really had in mind that an operator who had a pipe line from Princess to Bow Island, or the end of the system, should also have the right to take the gas from the surrounding area, which might be even six or ten miles away from the Princess producing area, and I said that because it seemed to me that that would be one of the factors that would be considered by the operator in deciding whether or not he could sell gas at Bow Island.

Q MR. McDONALD: Yes, and whether or not you can earn enough money to pay for the - - for the cost of the installation you have to make.

A Well I did not go so far as that. I was looking to the future, Mr. McDonald. If an operator were assured of an initial volume of 15 million cubic feet per day, and in his own judgment if he was of the opinion that a larger reserve of gas would be present in surrounding areas, then he would take the additional reserves into consideration in considering whether or not he wished to transport gas from the area. Do I make myself clear?

Q MR. McLAWS: Whether or not you thought it was worth the investment?

A Yes. An operator might be willing to make a certain investment on 100 billion cubic feet of gas reserves. He might be willing to make a different investment if he were convinced that there was definitely 100 billion cubic feet of gas and the possibility of 300 billion in the general area. I think that is normal practice, possibly.

Q MR. McDONALD: Would you consider it reasonable for your company or any other company making such an investment





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to look to this Board to safeguard it on a reasonable basis in carrying that out?

A So far as I am concerned I think it should follow that an operator such as we have referred to, should expect fair dealings.

Q Yes. And fair dealing would involve?

A A chance to make a reasonable profit.

Q Yes. And prevent unreasonable competition which would destroy his profit?

A If it did destroy his profit I think he should be protected. If it did not destroy his profit I do not know what the Board might rule in that regard.

Q The principle could be put this way. If you provide the service that is necessary, you should be entitled to make a profit, to carry out the service and make a profit?

A I think that is sound.

Q And be protected to that extent?

A Pardon me?

Q And be protected by this Board to that extent?

A I think that is sound.

Q I mean that is sound in principle, whether it is applied to the Princess field or any other field where gas is developed?

A Well, Mr. McDonald, I firmly believe that there should be encouragement given to capital, and I do not see how it can be called encouragement unless capital can be returned at a profit.

Q Now, Mr. Galloway, this gas from the Sunburst sands, as I understand, does not contain hydrogen sulphide?

A That is my understanding, Mr. McDonald.

Q Have you seen the tests of the gas from a number of these wells, that is from the Sunburst?



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A I have had them, I think, in many instances analyzed by chemists.

Q Now would it be fair to say that the gas from the Madison and from the Chert Bed, and possibly the Devonian, does contain  $H_2S$ ?

A Mr. McDonald, I do not know of any gas in that area from the Madison unless it is over in the outer portion, over in the Rainy Hills Syndicate well, and I do not know if that is from Madison, I do not know of any gas from the Chert, - gas from the upper portion of the Devonian does contain a small amount of hydrogen sulphide.

Q Now what about the gasoline content of the Sunburst gas, that is its GPM?

A Yes, I have that information. It varies.

Q What is the range?

A I could not give you the range offhand. I have an initial average of  $3/10$ ths to  $3/8$ ths of a gallon per thousand cubic feet.

Q Well my information is that it runs from about .15, that would be  $1\frac{1}{2}/10$ ths per one thousand cubic feet?

A It might be correct. I do not have those figures before me. I was thinking of it as an average from the analyses that have been made.

Q  $3/10$ ths you think possibly would be the maximum, as you recollect these tests?

A So I think that it is possibly from  $3/10$ ths to  $3/8$ ths of a gallon, but that is pretty difficult to determine at this stage, and I believe accurate information could be obtained only after the wells went on sustained and steady production.

Q Dealing with water intrusion in the Sunburst sand, is the





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water actually present in the Sunburst sandstone, or is it present in other horizons and escapes through faulty drilling?

A I do not believe that there is water in the Sunburst zone within the closed contour of the Princess structure, except as a connate water or fossil water. Immediately underlying the Sunburst there is a very coarse permeable zone that we referred to as the Chert zone, that has oil in it which is underlain by water. It is more permeable than the Sunburst zone, I believe. Some of the difficulty in testing the wells at Princess was that both of these zones were open, or in this case where only the Sunburst was open, we attempted to obtain more oil than we should have, and there was a tendency for the well to go to water and gas, but the water by reason of that type of production practice was coning up. Such a situation is not unusual in oil fields.

Q Now I was struck by your statement yesterday that you produced these wells at 10%. Was it on the open flow that you referred to?

A No, I had in mind that we might begin with a production rate which would have a 10% decline, well, say from 1500 pounds. I went on to say I believe that that would be subject to change from time to time as we studied and produced the wells.

Q Yes. Now, I took it to be entirely opposite that the 10% referred to was the 10% open flow. Now have you any means of estimating that?

A Oh, Mr. McDonald, I am sure that I have not considered the wells as ever being subjected to open flow. No, I have not had any such idea in mind. I have thought of the





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wells . at all times with respect to their pressures, that is, the formation pressure around the well. That is, the bottom of the well and also the pressure at which the well would be produced from time to time.

Q MR. BLANCHARD: I took the answer to mean 10% of the capacity of the well daily.

A Pardon me?

Q I took it to mean 10% of the capacity of the well daily?

A No, I did not, Mr. Blanchard, have that in mind.

Q MR. McDONALD: Well then, how does that reconcile the impression with the statement yesterday that water intrusion may come into any one of these wells at any time? That is what I understood your evidence yestereay?

A I think it would be likely to cone up from below if the wells were subjected to open flow, and I think that an operator would be guilty of poor practice to permit such a thing, particularly after the experience which we have had.

Q And this coning would come from the horizon immediately below the Sunburst?

A That is correct.

Q And that would arise because of your pressure at the bottom of the hole lessening to such an extent that the water would come right through the Sunburst sand?

A I think the Chert Zone is more permeable than the Sunburst zone.

Q Yes?

A And perhaps the coning with unrestricted flow is more likely to occur.

Q Now, after a well has been allowed to cone, is it irretrievably lost?



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A No, it is not.

Q Would you plug back or plug off the horizon which is causing the trouble?

A Sometimes you can plug back. Other times you shut the well in and leave it shut in for a long period of time, and eventually put it back on a very restricted flow and you may have no difficulty with it.

Q Now then, can you give me an example? Take your Princess-C.P.R. No. 1, 1545 pound pressure, and the top hole pressure, what would you operate the well at to get 10%?

A I do not know, Mr. McDonald. I think we would be likely to drill the wells, place them on production, shut them in, take bottom hole pressures, determine the pressures in each well, decide arbitrarily to draw down the well at a certain rate, and take the bottom hole pressure at that time, and determine whether or not we wished to draw it any faster than that, but it would be based on a study that went on currently.

Q Well, how much gas would you think the C.P.R.-Princess would produce on reasonable and proper operation?

A Well I could not say, Mr. McDonald. I think that an operator would be more likely to come out better if he used the field rather than any particular well.

Q Well, do you think that the C.P.R.-Princess would produce, the C.P.R.-Princess No. 1, would produce a million feet a day on<sup>a</sup>/reasonable operational basis?

A Oh, I am sorry, I misunderstood you. I have in my mind, arbitrarily to start with, that we might attempt to produce the well in the vicinity of 1 million feet per day, and then watch it and make any adjustments that we might consider





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or might seem necessary.

Q What I had in mind, Mr. Galloway, is how many wells you would have to drill before you could undertake to supply 15 million cubic feet a day?

A Well I had in mind that if the contracts were available for an average of 15 milion, we might have, 15 million cubic feet a day, we might have 30 wells in the field.

Q 30 wells?

A Yes.

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Q Now if you were looking for an average of 15 million a day that would mean during the slack season, the seasonal off-peak load, you might deliver 10 million a day.

A Pardon me?

Q You might deliver 10 million a day on the off-peak days of your share of the market?

A Yes.

Q If you were going to deliver at 25 million on some additional days, maybe a week or two weeks or three weeks out of the year, would you require more than 30 wells?

A I don't think so, but again we are talking about factors that I would have to determine.

Q Have you given consideration to the decline in the wells? Would you have to have a continuous drilling program?

A I do not think so. I had in mind, or rather I was visualizing it that a contract would probably be let for a great number of wells and that is where we would come back to the economic and competitive angle again. That we would get them drilled at a fairly low cost.

Q When you say a great number of wells, would it be more than 30 you have in mind?

A No, I do not have in mind any more than 30 for this 15 million cubic feet a day average in the Princess structure.

Q And you are thinking of 35 thousand dollars per well cost?

A No, I was not.

Q I understood that was your evidence yesterday.

A The question was put to me, I believe, what does it cost us to drill wells to that zone and I took that to mean today, but today I am searching for oil and I figure that they would cost me about 35 thousand dollars. But if I knew that I could





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drill a great number for gas I could reduce that price considerably.

Q What would your allowance be for dry holes? Do you think you should allow 20 per cent for dry holes?

A I have not considered it, Mr. McDonald. I have not thought of the possibility. I had assumed that the area was proven and on the best information obtained to date, the Sunburst zone should be a blanket zone in there. I might say this that in my experience in developing oil fields, we generally find that we develop a larger area than we had at first anticipated. Production has a habit of running further down on the one end than operators normally anticipate and in California for instance most of the operators, small operators have become very wealthy by reason of that principle. The major companies have taken the top of the structure and the smaller operators have taken the flank or the plunge and there was lots of good oil there. So in here I think that I can safely assume that I should have approximately not less than 5900 acres. When I speak of in here I mean the Princess structure.

Q Have you made up a figure as to what the drilling of these 30 wells will cost you?

A Well no, because it would be difficult to do so. The figure which it would cost would be a competitive one. The bidding would be offered to contractors and if they did not do it at a price at which we felt it could be done, perhaps we would drill it ourselves.

Q Have you given consideration to the installation of the gathering system in the field?

A I have not gone into details of this thing, Mr. McDonald, except as I stated I believe to Mr. Chambers.



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Q For instance, you have not considered how much 10 inch or 12 inch pipe you would require?

A On the gathering system?

Q On the gathering system.

A No, I have not.

Q Or how much 8 inch pipe or 6 inch?

A No, I have not. I merely looked at it from the profit angle. I believe with a gross income of approximately 425 thousand dollars that a profit could be made.

Q I take it from that that you have not calculated the cost of an absorption plant and the installation of a dehydrator to dry this gas?

A No, I have not considered that because I have not considered the revenue to be obtained from the extraction of gasoline.

Q You have not gone into detail?

A No. That is over and above the gross revenue.

Q About the moisture content of this gas from the Sunburst. Would it have to be dried before you could put it in the line?

A I think it might. I think there is a good possibility we might have to dry it.

Q Have you given any consideration to the cost of the drier, the unit cost per Mcf.?

A Since no sulphur is present, to my knowledge, I do not believe that should be an appreciable cost although I have not considered it in detail.

Q As I understand in reply to Mr. Chambers, in regard to the pipeline from this area to Barnwell or Bow Island, you consider you would require a 14 inch line.

A I think that probably would be advisable or so I am informed by engineers if 15 million cubic feet a day were going to be the average throughout.





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Q Have you given consideration to the pressure that there would be at the inlet of the line?

A Yes. I could give it consideration now.

Q What did you have in mind.

A Well, I think that the pressure would have to be reduced at the intake at Princess. We would have to hold it back in other words.

Q To what figure?

A I have not considered that figure. I believe that probably would be the result of trial and error. It would be dependent on the pressure at which the system would require it at Bow Island or Barnwell. If they wanted 300 pounds, that is one thing. And if they wanted 400 pounds, that is another.

Q You think for some time you could supply say 500 or 600 pounds per square inch pressure at the inlet?

A We could supply what?

Q 500 or 600 pounds pressure at the inlet of your line?

A Yes, I think so. Easily. But again I am relying on the advice given me by engineers.

Q Have you ascertained the possible cost of installing the 14 inch line?

A No, I have not except in a very hazy manner. I do not believe you could obtain such a thing at the present time.

Q Have you given consideration to the operating expense of your installations?

THE CHAIRMAN: I do not know, Mr. McDonald, but I have a hazy notion that this witness has said, perhaps 20 times, that he has not gone into any detail at all. I do not want to interrupt you but it does seem unnecessary to have him repeat ad nauseum what he has said so many times already.



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MR. McDONALD: He makes a general statement, Mr. Chairman, and I want it on record exactly what he has given consideration to. He certainly must have given some consideration to something.

THE CHAIRMAN: He has made this statement that if he gets a market of an average of 15 million feet per day which will yield him a gross revenue of something in the neighborhood of 400 thousand dollars, he believes he can operate at a profit. Is that the furthest you have gone, Mr. Galloway?

A I believe that is right. I think it must be presumed that it would require good management.

Q MR. STEER: And you said you would take a contract for 15 million cubic feet at  $7\frac{3}{4}$  cents.

MR. McLAWS: Not at the present. At a time. Not during the war but after the war.

MR. CHAMBERS: How long?

MR. FENERTY: When you can get the steel.

MR. McLAWS: Yes.

A I do not believe I have been asked that question yet.

Q MR. STEER: I think you said you would take a contract.

MR. McLAWS: You mean to say take a contract at the present time?

MR. STEER: No, when he could get the steel.

MR. McLAWS: That is what I wanted to make clear.

A I did not know I was offered a contract.

MR. STEER: No, you were not.

Q MR. McDONALD: In arriving at your figure of \$425,000.00 you have told us you have taken into consideration the fact that you would have to buy gas from other producers as and if and when they became active and operated their leases in your





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area, is that a fair statement?

A If I heard it correctly - I do not believe I ever said that but will you repeat that, Mr. Reporter.

Q I will put it to you this way, that you anticipated that you would develop your own leases. You have also anticipated that lease holders in the same area would develop their leases and that since gas produced from a common area must go to the common market under this Act, you would have to buy the gas from the other lease holders.

A I think I probably would be required to do so.

Q I understood your evidence a short time ago was you anticipated you would have to do so?

A Yes, I think that if I had a line and that I had a contract I probably would be required to do so.

Q Have you given consideration to what you would pay - as to what you would offer or ask this Board to approve that you would pay for the gas produced by the other producers or the other lease holders?

A I presume I would be offering the profit which I was making on mine and if he did not consider that satisfactory he would not have to sell it. But you are talking about . . . . .

Q You do not know now what that profit is or the price you would offer?

A I have no way of determining that at the present time.

Q The reason for that is you have not given consideration to these details?

A I probably should state that in arriving at the opinion I gave that I took the gross revenue of approximately 425 thousand dollars; but I figured I had to meet competition or else the gas could not be sold.

Q Yes.



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A That perhaps the difference between what is now going on at Turner Valley and would be going on at Princess might be 40 miles of pipeline and I merely took away from my 425 thousand dollars 100 thousand dollars or maybe 115 or 125 thousand dollars which would handle the carrying charges on the construction and the handling of that 40 miles of excess line. With that in mind, I should still be able to make a profit, a reasonable profit with an income of from 300 to 325 thousand dollars annually. And that is really the basis on which I stand. I have not gone any further than that.

Q If, when you come to the details of these installations and the drilling and the risks involved and you are wrong in your estimate and the total cost should amount to more than \$425,000.00, you would really be giving your gas away for nothing, would not that be the outcome?

THE CHAIRMAN: Is not this whole discussion so absolutely academic it is wasting time. One thing that this witness has proved and established is that there is a gas field at Princess and no matter whether we take his figure or Mr. Webb's figure there is a very substantial gas field there. When the day comes that Princess gas may be needed in Calgary or when Princess says "we want a share of the Calgary market" then they will have to go into these details into which they have not yet gone and find out whether they can compete with Turner Valley Gas or whether they cannot. We might then have to consider whether there should be a market sharing position with a different price in one field and a different price in another field, with an average price, wholesale price, to the Gas Company in Calgary. Those things are all possibilities but they are not practical possibilities at the moment.





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Q DR. BOOMER: You have no intention of asking for entry into the Calgary market.

A No, I have not.

Q Until the Calgary market needs you?

A No.

MR. McLAWS: And until steel is available.

A Both of these statements have expressed what I have attempted to say here, so poorly I suppose.

Q THE CHAIRMAN: Suppose, Mr. Galloway, 5 years from now steel was available and construction costs were down and you have that gas there, do you want to commit yourself today by saying that you do not want a share of the Calgary market until the Calgary market needs your gas?

A No, I do not want to go that far.

Q I thought you did.

A I want myself to be left - perhaps I should state my impressions. When I came here I understood that an investigation was being made of the gas at present available to Calgary or this Southern Alberta gas system and an investigation of possible other sources for that system. I understood further that you were attempting or would attempt to determine the value of the gas probably at many places along the way between the reservoir and the downstream side we will say of any plants where gas was being placed into the system. Now I want this Board to know that in the opinion of the California Standard Company, we have established, while searching for petroleum, substantial reserves of gas at Princess and while you are making these other considerations we would like you to consider the fact or consider the possibility that we may wish to serve you gas into your system at a time when we are able to do so at a price which would be satisfactory to us and to the Board. I have attempted to say that. Perhaps I have said it poorly.



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Q I personally got that opinion as being your intention.

Q DR. BOOMER: Would it be fair to say from your preliminary examination and assuming you can develop the necessary resources that the present price structure in the Canadian Western system, particularly say at Bow Island or Turner Valley, is not far from what you would expect to get?

A Dr. Boomer, that is putting me on the spot. Frankly, I would like to get as much as I can get.

Q You told me flatly yesterday that you would take  $7\frac{3}{4}$  cents. I gathered this morning you did not quite mean exactly  $7\frac{3}{4}$  cents and I am asking you . . . . .

A I am sorry, I misunderstood you. I thought I was telling you yesterday that I could I believe at the time I will get the steel requirements and the labor requirements, furnish gas at Bow Island at that price or a comparable price at a profit. That is what I am attempting to say to you and that is what I was thinking of yesterday.

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Q DR. BOOMER: And at a comparable price you think,  
plus or minus  $7\frac{3}{4}$  cents?

A Plus or minus  $7\frac{3}{4}$  cents.

MR. HARVIE: Just one question I would like to ask,  
Mr. Chairman?

THE CHAIRMAN: Yes?

CROSS-EXAMINATION BY MR. HARVIE:

Q That is, Mr. Galloway, have you given consideration to the  
possibility of locating any other market than that supplied  
by the present Southern Alberta Gas System?

A Pardon me.

Q Have you given any consideration to there being another market  
than that offered by the so-called Calgary Gas System?

A Yes, I have from time to time.

Q And what have you concluded, what conclusion have you come to?

A That I would consider it further at the conclusion of the War.

THE CHAIRMAN: Anything further, - thank you, Mr.  
Galloway.

Do you want to start on another item of  
the Agenda?

MR. CHAMBERS: If we do start the sharing position I  
am sure we cannot finish it next week, and the other evidence  
of the engineers who will be here.

THE CHAIRMAN: You are suggesting, Mr. Chambers, that  
we adjourn now, are you?

MR. CHAMBERS: Yes.

THE CHAIRMAN: I am very willing to adopt your suggest-  
ion.

MR. CHAMBERS: I take it then on Monday we will start  
with the other subject, rather than sharing?



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THE CHAIRMAN: Yes, that is right. We will now adjourn.

(The Inquiry was here adjourned to be resumed at 9.30 a.m.  
Monday, April 9th)











